

Assessment Using Online Tests of Randomly Selected Questions Under E-Learning

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Abstract

The purpose of this work is to investigate approaches that can be appropriate to provide summative assessment of students' performance under e-learning. Our method is to design online tests consisting of randomly selected questions from pre-designed question pools. Different from simply changing the order or values of the test questions, problems in each pool are completely different questions pertaining to the same subject. Students' scores of these online tests collected in a senior-level control course suggest that the tests constructed this way are challenging enough to differentiate students' performance sufficiently. We believe that incorporation of randomness is the key to minimize plagiarism. This assessment method helps to maintain the course standard universally across all teaching platforms (in-person, hybrid, or online).

Keywords: online teaching, online test, assessment, control, undergraduate

Introduction

The context of this work is a senior-level undergraduate control course offered by the Dept. of Computer Engineering Technology (CET) as a major course in its BTech program. The course objective is to address fundamental subjects in classic control theories, i.e., modeling, analyses, and design of single-input single-output systems using frequency-domain methods via (inverse) Laplace transform. This course was offered in-person before spring 2020. Since spring 2020, the global COVID-19 pandemic has caused our institution to shift its courses from in-person to online.

To cope with this transition, a set of technology-enhanced online teaching practices (such as synchronous virtual meetings, Blackboard [1, 2], online quizzes [3, 4], take-home tests, and virtual office hours) was used to establish teaching presence and maintain synchronous & asynchronous interactions between the instructor and the students [5]. Among these practices, emphasis was placed on designing/utilizing appropriate (summative) assessment methods to promote student learning, minimize plagiarism, and maintain the course standard universally across all teaching platforms (in-person, hybrid, or online). Our key assessment method used under e-learning is via in-class online tests consisting of randomly selected questions from pre-designed question pools.

To avoid plagiarism, randomness was added into the exam questions by more than simply changing the order or numerical values of questions [6]. Instead, completely different questions were designed to evaluate students' understanding and mastery of the same subject. Results collected in the fall 2020 semester (under online teaching) shows that students' scores of these

online tests span a pretty broad spectrum. This indicates that the test questions are challenging enough to differentiate students' performance sufficiently. Clearly, adding more levels/types of randomness greatly helped to obtain trustworthy summative assessment results.

This paper describes our design philosophy of these online tests, illustrates how randomness can be added other than simply changing the order & values of questions, and presents in details how the online tests were construed out of pre-designed question pools. While higher education is bringing back more in-person instructions, experiences learned during the pandemic are helpful for future higher education under more versatile teaching modes.

Online Tests with Randomly-Selected Questions

Conducting exams and/or summative assessment in the online teaching mode is more challenging for instructors when compared to the traditional in-person teaching mode. When this control course was taught in-person, two exams, one midterm exam and one final exam, were used to provide summative assessment of students' learning and knowledge [7]. Both exams were in-class, closed-book, closed-note, closed-computer before spring 2020.

Under e-learning, how to minimize plagiarism is a question faced by many instructors who still plan to use exams to facilitate and evaluate students' learning. Some professors still gave the exams similarly to what was done before (while in-person) using the same exam for all students. To avoid plagiarism, students were required to either keep the camera/video on or join in using one additional device so that the instructor can monitor the students while taking the exam. Other professors chose to integrate randomness into the exams so that the exams were different (not the same, or not exactly the same) for each student. One common method to add randomness is to randomize the order of questions. Another way is to use multiple variations of the same problem with different numeric values [6]. Slightly different from these two ways of adding randomness, our approach adopted for online teaching is to design online tests with randomly selected questions.

Specifically, in fall 2020, both the midterm and final exams were re-structured to include two portions: an in-class online test and a take-home (or at-home) test. The online tests were designed to consist of randomly selected questions (either multiple choice or fill-in-the-blank questions) from pre-designed question pools. Questions in the same pool are not just different by numerical values. They were actually different questions addressing the same topic. For example, in the question pool on "system's order, zeros and poles", the four candidate questions are shown in Table 1. Another example of the pool on "root locus" is given in Table 2. In these two examples, questions in each pool are completely different questions pertaining to the same subject.

The Online Test 1 was part of the midterm exam, consisting of 25 questions with 2 points per question. In other words, the midterm exam was divided evenly between the online test and the take-home test. When exams were in-person, the exams were usually structured to have a session of multiple-choice questions with a typical weight of 30%. Now, under e-learning, the weight was increased from 30% to 50% for the benefit of implementing randomness into the tests.

Table 1: Candidate questions in the pool on “system’s order, zeros and poles”

Determine the order of a system given by the following transfer function $G(s) = \frac{s+3}{s(s+1)(s+2)}$ Candidate Question (1)	Determine the order of a system given by the following transfer function $G(s) = \frac{s}{(s+1)^2(s+2)}$ Candidate Question (2)
Given a system described by the following transfer function $G(s) = \frac{1}{s^2(s+1)}$. Which of the following is correct regarding zero(s) and pole(s) of this system? A. The system has one zero at origin and two poles at $\{0, -1\}$ B. The system has no zero and two poles at $\{0, -1\}$ C. The system has no zero and three poles at $\{0, 0, -1\}$ D. None of the above Candidate Question (3)	Given a system described by the following transfer function $G(s) = \frac{s}{s^2+4s+13}$. Which of the following is correct regarding zero(s) and pole(s) of this system? A. The system has no zero and two poles at $\{-2, -3\}$ B. The system has no zero and two poles at $-2 \pm 3j$ C. The system has one zero at origin and two poles at $-2 \pm 3j$ D. None of the above Candidate Question (4)

Table 2: Candidate questions in the pool on “root locus”

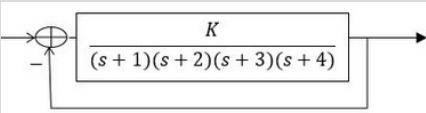
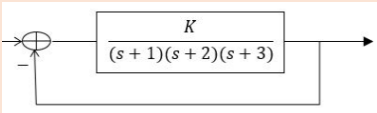
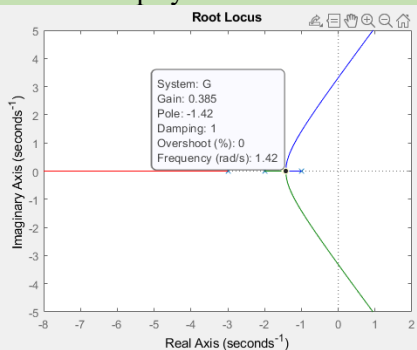
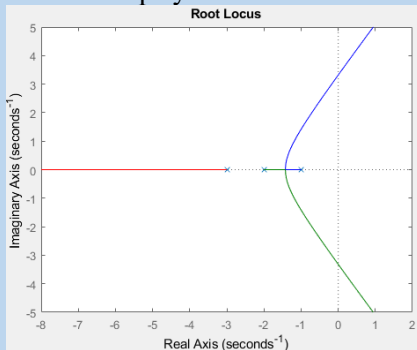
Given the following closed-loop system for $K > 0$, find the angles of the asymptotes of the system’s root locus.  A. $\pm 60^\circ$ B. $\pm 90^\circ$ C. $\pm 45^\circ$ and $\pm 135^\circ$ D. None of the above Candidate Question (1)	Given the following closed-loop system for $K > 0$, find the real-axis intercept of the system’s root locus.  A. $s = -1$ B. $s = -2$ C. $s = -3$ D. $s = -1.42$ Candidate Question (2)
Given a closed-loop system’s root locus as shown:  The point at (approximately) $s = -1.42$ is: A. Real-axis break-in point B. Real-axis break-away point C. $j\omega$ -axis crossing D. None of the above Candidate Question (3)	Given a closed-loop system’s root locus as shown:  Which point is on the root locus? A. $s = -0.1$ B. $s = -2.5$ C. $s = 0$ D. $s = -6$ Candidate Question (4)

Table 3 shows details on how the online tests were constructed. It can be seen that both online tests covered a broad spectrum of subjects, making them suitable as summative assessment methods. By selecting questions from several candidate questions randomly, the probability of two students having exactly the same set of questions becomes very dim. Though plagiarism cannot be completely avoided, answer-sharing among students can be significantly reduced, yielding more trustworthy summative assessment results.

Table 3: Design of online tests with randomly-selected questions

Topic of each question pool	# Of Questions Selected for Test 1	# Of Questions Selected for Test 2	# Of Questions in Each Pool
Complex number	1	1	4
Laplace transform	1	1	4
Partial fraction expansion	1	1	4
Transfer function and Ordinary differential equation	1	1	4
System's orders, zeros, and poles	1	1	4
Zero and pole plot	2	1	5
Input-output relationship	1	1	2
Signals (step, ramp, sinusoidal, exponential)	2	1	7
1 st order system	1	1	2
1 st order system's performance specifications	1	1	3
2 nd order system (undamped, under-damped...)	3	1	5
2 nd order system (find damping ratio, natural frequency)	1	1	2
2 nd order system (performance specifications)	1	1	2
Block diagram reduction	3	1	7
Steady-state error (system type)	1	1	2
Steady-state error (position, velocity, acceleration constants)	1	1	3
Steady-state error (obtain $e(\infty)$ from plot)	1	1	2
Stability (determine stability from pole locations)	2	1	5
Routh stability criteria		1	4
Root locus		1	6
PI controller design		1	3
PD controller design		1	2
Frequency response and Bode plot		1	2
All quiz questions before the final exam		2	100

Overall speaking, both online tests went smoothly since students were already prepared by low-stake in-class online quizzes before each exam (7 and 10 online quizzes before the midterm exam and the final exam, respectively). So, they became familiar with taking quizzes/tests online. However, there can be certain situations that require extra special handling.

For example, one or two students reported to the instructor that they were “kicked out” of the exam for “no reason” (possibly due to some mis-operations or Internet connection issues). In this case, students' online tests were automatically submitted for them by the system (i.e., Blackboard).

Before each online test, we were prepared that certain issues might arise. So, we required the students to attend the regular virtual meetings and report any issues to the instructor immediately. These issues need to be resolved case by case. For instance, if the student just started the online test, the student usually didn't mind re-doing/re-starting the online test again, being aware that he would likely get a completely different set of questions. In this case, the instructor can simply clear the students' previous attempt so that the student can start all over again. If the student was almost finished (and thus did not want to start a completely new set of questions), the student would be given the rest of the questions that he didn't answer yet. Both cases occurred during the fall 2020 semester. In each case, the instructor discussed with the students and arrived at a solution that was fine to both the instructor and the student.

Though a significant amount of work was needed to conduct online tests of this kind, results turned out to be reasonable and appropriate. We feel that the benefits of running these online tests greatly outweigh the efforts and word load. Our teaching approaches of using combination of low-stake online quizzes (to give students formative feedback) and online tests (to provide summative assessment of students' learning) can be applied to many other classic courses that involve theories, analyses, and hand-computations.

Figure 1 shows the distributions of students' scores of the two online tests in fall 2020. It can be seen that the test scores were different enough to differentiate students' learning performance, and are thus appropriate to be used as formal summative assessment of students' learning performance.

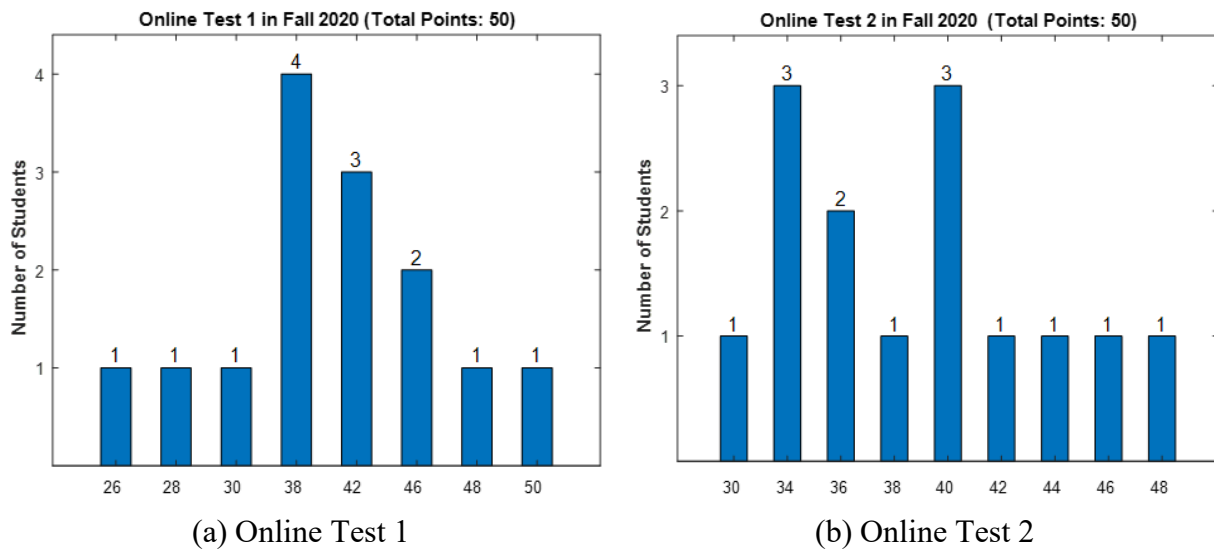


Figure 1: Distributions of students' online test scores in fall 2020 with 14 participating students in the senior-level classic control course.

The following summarizes our practices that were found to be helpful in conducting online tests:

- 1) Decomposition of big topics into smaller testable modules.
- 2) Design of multiple candidate questions in each question pool.
- 3) Preparation of students to be familiar with online test taking using online quizzes.

- 4) Preparation of students to be familiar with different types of questions to be asked in an online test (multiple choice, fill-in-black, true/false, etc.).
- 5) Providing detailed instructions before the online tests.
- 6) Requiring students to join in synchronous virtual meetings during the online tests so that the instructor, together with the students, can resolve any unexpected issues that may arise.
- 7) Discussing with students to find a suitable solution in the presence of any technical issues such as Internet connection issues, Blackboard issues, online tests automatically submitted when students transit from one device to another, and etc.
- 8) In case some students are eligible for extra exam time (one-and-half or double time), make sure to set the ending time differently and correctly.

Appropriate Assessment Methods for Online Teaching

Under e-learning, the ultimate goal is to provide students with meaningful learning experience, regardless of the teaching mode (in-person, hybrid, or online). It is also equally important to use trustworthy assessment methods to properly evaluate students' learning performance, reveal issues that arise largely due to the change of teaching format, assign reasonable grades to students, and overall speaking, to maintain the course standard universally across all teaching platforms. For this purpose, we compared data collected in fall 2020 under e-learning with data collected in three past semesters during in-person teaching (2017 spring, 2017 fall, and 2018 spring). For fall 2020, we computed the average of students' scores of the online tests 1 and 2. For the past three in-person offerings, we computed the average of students' scores of exams 1 and 2, by putting all students' scores together. These average scores are given in Table 4.

Table 4: Comparison of Averages of Students' Scores (Online Tests vs. In-Class Exams)

Fall 2020, Online, 14 Students		Three Past Semesters, In-Person, 64 Students	
Online Test 1	Online Test 2	In-Class Exam 1	In-Class Exam 2
78.9	77.4	78.2	73.6

Referring to Table 4, comparison between the averages of "Online Test 1" and "Exam 1" shows that they are pretty close. Comparison between the averages of "Online Test 2" and "Exam 2" shows that the average of "Online Test 2" is slightly higher. Though the student body is different and we are not expecting "exactly" the same scores, we still suspect that this small increase might be due to the inclusion of two questions from previous quizzes (in total 4 points), as shown in the last row of Table 3. Notice that correct answers of all quizzes were released to the students before the final exam (to help students to prepare for the exam). For future online tests, we plan not to include any questions from past quizzes. In other words, all questions from the online tests will be completely new to the students.

Despite this small increase, the average scores of online tests 1 and 2 closely resemble those of exams 1 and 2, respectively. This indicates that using the online tests can be an appropriate assessment method under e-learning. We feel that adding randomness is the key to obtaining trustworthy assessment results and to avoid plagiarism.

Observations of Online Teaching of the Control Course

This control course was offered in-person before spring 2020. In spring 2020, the global COVID-19 pandemic caused our institution to shift its courses from in-person to online (virtual, e-learning, remote learning, distance learning). At the time of writing, we have had two semesters of primary online offerings (spring and fall semesters of 2020) and just started the third in spring 2021. During this period, each educator has gained lots of online teaching experience. Based on our interactions with students and observations of students' performance synchronously and asynchronously under e-learning, we feel that teaching this control course online does not seem to be a good option.

Some courses might fit well for e-learning. For example, programming courses (in MATLAB, C/C++, Java, or Python) can be efficiently taught online since screen sharing between the students and the instructor can resolve almost any computer programming issues. Instructors can even obtain remote control/access to the students' computer (upon students' approval) to remotely resolve these issues. Though teaching is delivered virtually, classroom demonstration is still similar to what was provided while in-person. On the other hand, courses that are either mathematically involved or require thorough understanding of the topics in order to proceed further are not quite suitable to be taught online. This senior-level undergraduate control course fits into the second category. Image during in-person teaching, lecture on the typical design procedure of a PD controller can take two blackboard spaces. Under e-learning, this entire procedure has to be cut into pieces & segments to fit into the computer screen. This prevents students from seeing the "big picture". We feel that subjects that require intensive math computation or multi-step analysis can be better explained in-person.

Conclusion

The purpose of this study is to seek appropriate summative assessment methods for online teaching, which help to promote students' learning, maintain course standard, and provide trustworthy assessment results of students' performance. The study was performed in a senior-level undergraduate control course. To achieve this goal, we designed in-class online tests with randomly selected questions from a set of pre-designed question pools. Students' scores of these online tests suggest that the test questions are challenging enough to differentiate students' performance sufficiently. Averages of the two online tests in fall 2020 closely resemble those of in-class exams when teaching was in-person. We believe that incorporation of randomness into the online tests is the key to minimize plagiarism. Thus, using online tests with randomly-selected questions can serve as an appropriate assessment method for e-learning.

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In-service Teachers' Development of Mathematical Modeling Understanding

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Abstract: Studies have reported that teachers have incorrect understandings of mathematical modeling. Because of this there is a need for research on how to better equip teachers to understand mathematical modeling and implement it effectively. This study investigated in-service teachers' understanding of mathematical modeling and how these understandings changed throughout a master's level class focused on functions and mathematical modeling. Essential elements of mathematical modeling were used to ascertain the extent to which the teachers developed understanding of mathematical modeling. The teachers had incomplete understandings at the beginning of the course but progressed to a more complete understanding of mathematical modeling.

Mathematical modeling has been receiving more attention since its inclusion in the U.S. Common Core State Standards for Mathematics (Common Core State Standards Initiative [CCSSM], 2010). It is incorporated as one of the eight standards for mathematical practice and also sixteen content standards are highlighted as modeling standards at the high school level. The National Council of Teachers of Mathematics recently published a book called *Mathematical Modeling and Modeling Mathematics* (Hirsch & McDuffie, 2016) in which the topics included understanding models and modeling, designing curricula, assessment, and supporting teachers' learning about mathematical modeling. To provide further guidance for teachers, leadership from the Consortium for Mathematics and Its Applications (COMAP) and the Society for Industrial and Applied Mathematics (SIAM) published a report in 2016 called *Guidelines for Assessment and Instruction in Mathematical Modeling Education (GAIMME)*.

These works are welcome additions to the mathematical modeling literature, but more work still needs to be done to better understand how to properly support teachers to effectively implement mathematical modeling. The authors of the GAIMME report state that, "A major reason for the creation of GAIMME was the fact that, despite the usefulness and value in demonstrating how mathematics can help analyze and guide decision making for real world messy problems, many people have limited experience with math modeling" (COMAP & SIAM, 2016, p.v). This is because in the past mathematical modeling has not been seen much in teacher education (Biembengut & Hein, 2010; Doerr, 2007). Also, it has been found that the way modeling is presented in textbooks does not allow students to go through the full modeling process (Meyer, 2015), which could give teachers an incorrect understanding of mathematical modeling. In fact,

previous research conducted on teachers' understanding of mathematical modeling has shown mostly incomplete or incorrect understandings (Anhalt & Cortez, 2015; Gould, 2013; Stohlmann, Maiorca, & Allen, 2017; Tekin, Kula, Hidiroglu, Bukova-Guzel, & Ugurel, 2012).

This study further explored what in-service teachers understand about mathematical modeling and how these understandings changed throughout their enrollment in a masters level course that had a focus on mathematical modeling and functions. The majority of the teachers in the class were Alternative Route to Licensure (ARL) teachers. It has been estimated that around 20 percent of new teachers enter the profession through ARL programs (DeMonte, 2015). Often these teachers enter the teaching profession with less educational preparation. Research is needed on ways to support these teachers so that they can have positive experiences to continue in the teaching profession. I would argue that helping teachers better understand mathematical modeling and how to implement it is an important topic especially for early career teachers. Through mathematical modeling, teachers can employ many best practices for teaching mathematics (Stohlmann, Maiorca, & Olson, 2015) that may affect the rest of their teaching positively as well. The research described here can provide useful information for teacher educators on ways to properly prepare teachers to understand and teach mathematical modeling.

Mathematical Modeling in the Common Core State Standards for Mathematics

The CCSSM (2010) state that, "Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace" (p.7). Specifically the CCSSM (2010) states modeling as "the process of

choosing and using appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions” (p.72). Also highlighted for modeling is the importance of making assumptions and approximations, revisions, identifying important information, interpreting mathematical results in the context of the situation, and reflection.

The CCSSM (2010) provides more information about modeling in their description of the modeling cycle. It “involves (1) identifying variables in the situation and selecting those that represent essential features, (2) formulating a model by creating and selecting geometric, graphical, tabular, algebraic, or statistical representations that describe relationships between the variables, (3) analyzing and performing operations on these relationships to draw conclusions, (4) interpreting the results of the mathematics in terms of the original situation, (5) validating the conclusions by comparing them with the situation, and then either improving the model or, if it is acceptable, (6) reporting on the conclusions and the reasoning behind them. Choices, assumptions, and approximations are present throughout this cycle” (p. 72).

Framework for Mathematical Modeling

My definition of modeling is that “mathematical modeling is an iterative process that involves open-ended, real world, practical problems that students make sense of with mathematics using assumptions, approximations, and multiple representations. Other sources of knowledge beside mathematics can be used as well” (Stohlmann et al., 2016, p.12).

To provide more detail on this there are seven essential elements of mathematical modeling that are important to be included in its implementation: (a) modeling should

start with a real world problem, (b) work from key questions that guide what the problem is asking participants to solve, (c) make sense of the problem with mathematics often involving assumptions and approximations, (d) goal of clear verbal and written communication throughout often including multiple representations, (f) modeling is an iterative process that involves open-ended problems, and (g) reflection on mathematics used or the modeling process (Stohlmann & Albarracin, 2016). These essential elements are aligned with the CCSSM as well as how the GAIMME report describes mathematical modeling.

Teachers' Understandings of Mathematical Modeling

There are many benefits to mathematical modeling that teachers come to notice after learning more about mathematical modeling and experiencing mathematical modeling activities. Thomas and Hart (2010) found that teachers found mathematical modeling to be engaging, integrated different mathematical knowledge, and higher-level thinking. A study with 31 secondary teachers found that the teachers liked that learning was done through mathematical discourse (Cheah, 2008). A study with 16 secondary teachers that participated in three mathematical modeling activities described that the teachers saw how the activities were close to real life problem solving, helped communication skills and mathematical discourse (Yu & Change, 2011). Wessels (2014) found that as teachers completed more mathematical modeling activities creativity was developed in the teachers measured as fluency, flexibility, novelty, and usefulness. Other benefits include highly meaningful exploration of concepts and deepening students' understanding and application of concepts (Soon & Cheng, 2013). A case study of two Singapore teachers who implemented mathematical modeling stated that the students of

the teachers were creatively thinking, collaborating, and increasing their decision making skills and independent learning ability (Chan, 2011).

Studies have looked at what teachers understand about mathematical modeling and found that teachers mainly have misconceptions or incomplete understanding of modeling before receiving instruction. In a national sample of 274 in-service and preservice teachers Gould (2013), through survey research, found that a majority of the teachers believed that mathematical models are physical manipulatives, that modeling can involve unrealistic scenarios, always results in the exact answer, and does not involve making choices and assumptions. Nearly 87% of the respondents were from a state that has adopted the CCSSM. Similarly, Jung, Stehr, & He (2019) found that teachers thought mathematical modeling was a teacher demonstration or the inclusion of visuals. The researchers stated that future research should be conducted on how teachers define mathematical modeling and on learning opportunities for teachers on mathematical modeling.

In a study of 11 preservice secondary teachers, Anhalt and Cortez (2015) found that more than half of the teachers misunderstood modeling as a teacher demonstration or as a visual or manipulative. After being in a class with a mathematical modeling module the teachers transitioned to a correct understanding of modeling as an iterative process involving making assumptions and validating conclusions connected to everyday situations. A study conducted with preservice elementary teachers found that the teachers could not define mathematical modeling and only 24% expressed that modeling is associated with daily life (Tekin et al., 2012). Doerr (2007) found that preservice teachers

in a mathematical modeling course shifted from a perspective on mathematical modeling as a linear process to an iterative process.

In total, the research shows that when teachers are able to experience mathematical modeling they come to see the benefits of this approach. Although research has been conducted with preservice teachers that led to better understanding of mathematical modeling, more research is needed with in-service teachers. This study extends the work of Anhalt and Cortez (2015) and Doerr (2007) by going beyond teachers participating in mathematical modeling to also implementing it themselves in their teaching. The research question that guided this study was: *What are in-service teachers' understanding of essential elements of mathematical modeling at the beginning of a master's course on functions and mathematical modeling and how do these understandings change throughout the course?*

Method

This study took place at a large Southwestern University. The class was a master's level class that focused on mathematical modeling and functions. I was the professor for this class. There were seven students enrolled in the class; five secondary teachers and two elementary teachers. The five secondary teachers were first year teachers from the Teach for America program. Teach for America is a non-profit organization that recruits and selects college graduates from top universities, who did not major in education, to serve as teachers. The selected members commit to teaching at least two years in a public or charter K-12 school in one of the 52 low-income communities the organization serves. The two elementary teachers completed traditional teacher preparation programs. One of the elementary teachers was teaching kindergarten

and had taught for four years and the other was teaching 5th grade and had taught for five years.

The class met for two hours and forty-five minutes once a week. Three of the classes focused on mathematical modeling. The teachers participated in and discussed Model-Eliciting Activities (MEAs). MEAs are a specific type of mathematical modeling problem. They are client driven, open-ended, and realistic. They are developed according to six principles (Table 1) that make for the most effective implementation for teachers and students (Lesh, Hoover, Hole, Kelly, & Post, 2000).

Table 1.

Principles for Guiding MEA Development

Principle	Description
<i>Model Construction</i>	Ensures the activity requires the construction of an explicit description, explanation, or procedure for a mathematically significant situation
<i>Generalizability</i>	Also known as the Model Share-Ability and Re-Useability Principle. Requires students to produce solutions that are shareable with others and modifiable for other closely related situations
<i>Model Documentation</i>	Ensures that the students are required to create some form of documentation that will reveal explicitly how they are thinking about the problem situation
<i>Reality</i>	Requires the activity to be posed in a realistic context and to be designed so that the students can interpret the activity meaningfully from their different levels of mathematical ability and general knowledge
<i>Self-Assessment</i>	Ensures that the activity contains criteria the students can identify and use to test and revise their current ways of thinking
<i>Effective Prototype</i>	Ensures that the model produced will be as simple as possible, yet still mathematically significant for learning purposes (i.e., a learning prototype, or a “big idea” in mathematics)

(Lesh, Hoover, Hole, Kelly, & Post, 2000)

Bukova-Guzel (2011) and Schukajlow and Krug (2013) noted the importance for teacher preparation in modeling for teachers to discuss example modeling problems and solutions from research. The first modeling problem the teachers completed, Historic Hotels MEA, was one that had been previously done with 7th and 8th graders (Aliprantis & Carmona, 2003), 9th and 10th graders (Backman, 2008), and preservice teachers (Stohlmann et al., 2015). Another modeling problem, the Paper Airplane MEA, had also

been done with high school students (Stohlmann et al., 2011). Teachers were also provided with example modeling problems to look at from a review of research on studies done on mathematical modeling (Stohlmann et al., 2016) and also websites of modeling activities that have been classroom tested. The teachers also read and discussed modeling described in the GAIMME report and the CCSSM

Data collection and analysis

The data collected in this study involved open-ended questionnaires, audio-recordings of class sessions, reading reflections, and a report based on the implementation of a modeling activity. The open-ended questionnaires included four opening questions on day two of the class.

1. What is mathematical modeling? Give a definition and elaborate on this definition.
2. Is implementing mathematical modeling possible at your grade level? Explain
3. Is mathematical modeling useful for students?
4. Have you implemented mathematical modeling in your teaching? If so, how?

The closing questionnaire used on day 3 had the same first three questions of the opening questions but the fourth question was changed to, *How confident are you in your ability to successfully implement mathematical modeling? What else do you need to know?* The closing questions on day 13 included the previous question as well as question number one from day 2. After the teachers implemented a modeling activity, they answered the following questions: *What was difficult about implementing the activity? What worked well with the activity? What would you do differently next time? Will you continue to integrate mathematical modeling in your teaching?* The participants' data was coded by a deductive coding strategy (Corbin & Strauss, 2008) using the seven essential elements of mathematical modeling described previously (Stohlmann & Albarracin, 2016).

Results

The results are organized around the teachers' understanding of the essential elements of mathematical modeling at the beginning of the class, the essential elements of mathematical modeling that were clearly met at the conclusion of the class, and those that might take more time for teachers to understand and implement. The final section provides insights into the teachers' reflections on their own implementation of mathematical modeling. The secondary teachers will be denoted with the abbreviation of ST1, ST2, ST3, ST4, and ST5. The elementary teachers will be denoted ET1 and ET2. For the first class period focused on modeling ET2 was absent. None of the teachers except ET2 had received any prior instruction on mathematical modeling. For ET2, she had been in three master's courses-technology integration, assessment, and primary mathematics education- previously where one class period in each course was devoted to mathematical modeling.

Misconceptions and incomplete understanding early

The teachers connected to two of the seven essential elements in their opening writings. Four of the teachers -ST1, ST2, ST3, and ST4- wrote that modeling should involve a real world problem. Four of the teachers-ST1, ST2, ST3, and ET1- also wrote about how modeling involves multiple representations. Though for ET1, it was not certain that there was a very clear idea of what mathematical modeling was as she also wrote, "Monkey see, monkey do" and "Hands on".

Though the teachers had incomplete understandings of mathematical modeling the teachers that completed the opening questions all felt that mathematical modeling was useful for students. ST1 wrote that mathematical modeling, "helps answer the frequent

‘when will I ever use this?’ question and could increase engagement.” ST3 wrote that, “if a student can relate a lesson/standard to real-world applications, they are more likely to remember it.” One teacher, ST2, described that she had implemented modeling in summer school teaching through quadratic equations with projectile motion and also through exponential equations.

The teachers next read through how mathematical modeling is described in the CCSSM and then determined whether 7 problems were mathematical modeling or not (Figure 1). Three of the teachers-ST1, ST2, and ST3- were able to correctly identify the mathematical modeling problems, while the other three teachers-ST4, ST5, and ET1- incorrectly stated d, e, and f were modeling problems. While these problems could be considered real world contexts, there is one correct answer for each problem instead of being open-ended which is required for mathematical modeling.

Mathematical modeling or not problems

- (a): Analyzing stopping distance for a car.
- (b) Estimating how much water and food is needed for emergency relief in a devastated city of 3 million people, and how it might be distributed.
- (c) How big is someone based on footprint and stride length?
- (d) A glass is in the shape of a right circular cone with radius of 5 cm and height of 13 cm. What height of liquid in the glass makes it half full? The formula for volume of a cone is $\frac{1}{3} \pi r^2 h$
- (e) I love ice cream, and I love bargains. One day, I went to Dairy Queen to have a Blizzard. I saw four sizes listed with the following prices: The Mini Blizzard was \$2.55, the Small Blizzard was \$3.25, the Medium Blizzard was \$3.80, and the Large Blizzard was \$4.65. If I wanted to get the most Blizzard for my money, then which size should I buy?
- (f) The tuition for several colleges are listed below. Costs are predicted to go up 3.7% each year. (1) What will the costs be next year? (2) What will the estimated costs be five years from now?
- | | | | | |
|---------|---------|---------|---------|----------|
| \$2,860 | \$3,580 | \$8,240 | \$9,460 | \$11,420 |
|---------|---------|---------|---------|----------|
- (g) How do you decide which 4 employees to keep based on reviewing employees’ records from last year for a lawn maintenance company?

Hours Worked				Miles Driven			
Employee	June	July	August	Employee	June	July	August
Jonathan	80	80	80	Jonathan	198	200	201
Cynthia	75	65	70	Cynthia	199	201	198
Jack	66	64	63	Jack	197	199	198
Kayla	45	50	55	Kayla	201	203	199
Tim	67	70	79	Tim	200	199	200
Aaron	65	70	78	Aaron	198	196	195
Matthew	80	79	78	Matthew	200	204	202
Julie	40	42	46	Julie	196	198	197
Travis	80	75	80	Travis	201	203	204
Kim	78	76	79	Kim	195	199	198
Dave	80	79	80	Dave	197	201	202
Andrew	42	43	40	Andrew	203	205	200
Gina	62	60	61	Gina	196	200	198
Alex	41	40	45	Alex	194	200	199

Total Number of Lawns Mowed									
Employee	June			July			August		
	Big	Medium	Small	Big	Medium	Small	Big	Medium	Small
Jonathan	15	12	30	16	14	34	16	15	35
Cynthia	18	10	35	19	12	35	14	16	36
Jack	14	16	22	15	16	22	13	16	22
Kayla	15	13	15	14	13	17	15	12	18
Tim	20	12	14	22	14	16	20	13	25
Aaron	16	27	32	14	18	33	15	19	42
Matthew	32	12	9	30	11	10	30	10	13
Julie	9	22	12	12	15	16	8	10	12
Travis	13	34	32	13	33	31	15	35	12
Kim	12	11	25	11	10	26	13	14	30
Dave	19	10	16	20	15	10	23	15	10
Andrew	26	19	27	18	22	35	15	16	36
Gina	12	15	23	16	20	12	15	22	15
Alex	11	20	10	12	21	11	11	19	12

Figure 1. Mathematical modeling or not problems

For problem d, ET1 continued her focus on modeling as hands-on manipulatives and stated that a teacher could show students a right circular cone as a model and “that it does not make a difference if the teacher or students are doing the modeling.” ST2 stated as a reason it was not mathematical modeling is that, “You could strip the context away and just be given numbers to plug in for variables to perform a procedure.” ST1 also stated that in comparison to problem a, “there are different variables that could be looked at including tires, speed, and type of car to analyze this situation. It is not just being given a formula to use.” I also noted that for it to be a modeling problem there needs to be more than one possible answer and students should have choices or assumptions to be made.

In response to this, then ST1 and ST2 asked me about problem e to see if the problem would be presented exactly like this to students or would students be given the volumes for the different sizes of blizzards. I replied, “that students could be given access to the Internet to find this information.” ST4, ST5, and ET1 still believed problem e to be mathematical modeling. ST2 stated that students “could just look up the volumes and then use this information with the price to find the one best size for the money.” ST1

added “based on how the question is asked, there is just one answer.” ST5 felt that problem e was a real world problem that used mathematics and ET1 felt like all of the problems could be mathematical modeling because they involve some sort of model that is being used. In response to this ST1 stated that ST4, ST5 and ET1 were “focusing on model as a noun and not as a verb.” ST2 added that an equation can be a model but who is doing the process of coming up with the math and choosing what to use. I emphasized the open-endedness of modeling again and that students should have to make choices.

For problem f and problem g, all of the teachers now agreed that f was not modeling and that g was modeling. ST1 stated the key part of the question is, “how do you decide.” I then agreed and stated that in this problem, students would get to pick what part of the data to use and what is the most important.

Essential elements of mathematical modeling clearly met

Based on the other class periods, teachers’ written reflections, class discussion, and the teachers’ own implementation of mathematical modeling there were certain essential elements that were more clearly accepted, understood, and implemented: modeling should start with a real-world problem, work from key questions, reflection on mathematics used or the modeling process, and goal of clear communication often including multiple representations.

Modeling should start with a real-world problem

All of the teachers stated the importance of modeling starting with a real world problem. ST3 enjoyed the gas station example provided in the GAIMME report, in which a decision must be made if it is worth driving farther to get cheaper gas, because it was a practical problem. ST1 wrote about an example modeling problem that he has done in his

own life to “devise a monthly budget and savings plan.” ST4 wrote that modeling “involves students being given a realistic problem.”

There were other realistic modeling problems that were brought up. ST4 thought having students figure out the Gross Domestic Product (GDP) of different countries and then using this to see how much on average people live on each day could be a beneficial modeling activity for students. She also described an activity she did in high school where she had to pick a job and then figure out all her living expenses based on the salary of the job. ET1 noted a problem that is connected to that is figuring out where to live by taking into account a number of variables including transportation, cost of housing, and in general cost of living. ET2 liked the idea of using the marshmallow challenge (<http://www.tomwujec.com/design-projects/marshmallow-challenge/>) with her students for them to work on teamwork and non-standard measurement skills. In the marshmallow challenge teams have to build the tallest tower possible that can stand with a marshmallow on top. ST4 stated a couple more modeling ideas including if students were to do a survey of how many students had been bullied, been in fights, or seen fights happen at school and then use the data to try to make positive improvements. Another idea was to look at past average gas prices per month and use this data and any other information they could find for students to predict what the gas prices would be in the future.

In the teachers' implementation of mathematical modeling all of the teachers except ST3 started with a real world problem in their activity (Table 2). ST5 did not complete this assignment. The marshmallow challenge could be interpreted as not being a real world activity because when would you have to put a marshmallow on top of a

structure. Building a scale model of a stable structure is a real world context so that was the focus of classifying this activity as real world.

Table 2.

Description of activities implemented	
Teacher	Description of activity
ET1	Students designed a box they could fit in and calculated the volume. The activity was based on the book, <i>Henry's Freedom Box: A True Story from the Underground Railroad</i> , in which Henry Brown mails himself to the North to escape slavery.
ET2	Students designed a building using spaghetti and marshmallows through the usage of shapes. The activity was adapted from the marshmallow challenge (https://www.tomwujec.com/marshmallowchallenge)
ST1	Students investigated how the price a store manager sets for an item affects number of items sold, income, cost, and profit.
ST2	Students optimized the volume of an open-topped box through investigating cutting different sized congruent squares from each corner of a piece of paper.
ST3	Students determined the number of pieces of string based on the number of cuts made.
ST4	Students had \$1000 to select five companies to invest in and determined the change in stock price over five days.

It is not clear why ST3 did not implement a real world task, but was given the opportunity to identify two mathematical modeling problems that were real world that he could implement with his students. He was able to identify two activities that fit all of the essential elements of mathematical modeling. One activity involved determining if it would be possible for a bank robber to get away with 1 million dollars in small bills. The other activity focused on determining which vendor to order t-shirts from for a fundraiser and how many t-shirts of each kind should be ordered based on past sales. It might have been that ST3 had more of a difficulty in finding a modeling task that would fit the required curriculum or that he might not have felt comfortable in doing an activity in which he would have to be more of a class facilitator. This sentiment was shared by ST4

before implementing a modeling activity: “Are they going to be able to figure this out or what will happen?”

Work from key questions

Five of the teachers noted that in mathematical modeling students should work from key questions. In relating to the Historic Hotels MEA, ST4 stated that the key question for this problem was, “How many rooms should be offered for how much money to maximize profit?” Asking questions about life is something that ST3 found is natural for his students as he stated, “students have that drive to ask questions.” ST1 gave an example of a key question that he has used is, “how much do I want to deduct from my paycheck each month to contribute to a 403(b) retirement plan?”

All of the teachers had a key question, which students worked from in the activities. The questions are listed below.

- How does the price a store manager sets affect quantities including number of items sold, income, cost, and profit? ST1
- How can you maximize the volume of an open-topped box by cutting a congruent square out of each corner of a piece of paper? ST2
- What is the relationship between number of cuts and number of pieces of string? ST3
- How can you make the most money by investing in five stocks? ST4
- How can you design and calculate the volume of a box to mail yourself like Henry Brown did? ET1
- How can you design the tallest building using shapes and marshmallows and spaghetti? ET2

Reflection on mathematics used or the modeling process

In their activities all of the teachers had a class discussion on the mathematics that was used in the activities and continued to work with the mathematical concepts that students used because they were part of the mathematics in the current unit or chapter they were on. The modeling process was not emphasized by any of the teachers, as they did not have their students reflect on this or provide any instruction on the modeling process.

Goal of clear communication often including multiple representations

All of the implemented activities involved multiple representations and all of the teachers stated or wrote about the importance of clear communication in modeling. ST3 stated that “students can explain and justify their work” through modeling. ST4 echoed this in that “it is important with modeling that students justify and explain what they did in the problem/situation.” ST1 provided more detail in stating mathematical modeling is “applying math concepts to come up with a representation of a system/phenomena that illustrates or emphasizes key info about the system.” ST4 had previously connected modeling to representations but as only involving concrete manipulatives. “Before discussing the meaning of modeling more extensively in class, I thought of it as physically modeling a math problem that allowed students to use everyday products and embrace their tactile learning.” In her activity, the representations of language, pictorial, realistic, and symbolic were incorporated.

While ET1 implemented a modeling activity that incorporated different representations, there was also evidence that she believed that any mathematics activity that involved representations could be modeling. She stated that tangrams were a

modeling activity that she uses for geometry concepts. While students make realistic objects with the tangrams, there is no practical purpose or key question from which they are working in using the manipulatives. ET1 also stated an activity in which she has students hold up a number for place value and then the class has to correctly read the number. This is clearly not mathematical modeling, but does involve symbolic and language representations.

Essential elements of mathematical modeling that might need more time

The other two essential elements of mathematical modeling might require more time for teachers to fully understand and implement. For the usage of mathematics often involves assumptions and approximations all of the teachers wrote or discussed this element, but it was not fully seen in the teachers' implementation of their mathematical modeling activities. This was similar to the essential element that modeling is an iterative process that involves open-ended problems. While teachers may be able to describe these essential elements, being able to fully understand and implement these in the classroom is not an easy task.

Usage of mathematics often involves assumptions and approximations

All of the teachers stated or wrote about the need for students to make choices, assumptions, or approximations in the modeling process. ST3 wrote that students, "must be able to make genuine choices themselves." In class ET1 echoed this statement when she said, "Students are making genuine choices when they are coming up with the open-ended thought processes. It is really them thinking, not you telling them this is how you do things." This is something that ST4 liked about modeling and she wants to work on with her students. In general with her teaching she stated, "I give too much help. When

they don't get it...I need to get better at letting them think." This also was relevant information from the reading for ST2. She stated how modeling "shouldn't be overly directed by the teacher." While all of the teachers discussed or wrote about this essential element, ST2 and ST3's implemented activities did not involve assumptions or approximations, which could mean that it was not fully understood.

Modeling is an iterative process that involves open-ended problems

All of the teachers except ET2 wrote or stated the importance of modeling as an iterative or messy process that involves open-ended problems. ST4 noted how this is different from traditional mathematics problems. "There is always a direct method to do a problem. That is always how we have taught math. There is one or two methods of doing this type of problem. This is the right way. This is how you get the right answer. More so with modeling they have to think about all the different ways, all the different choices they could be making, the assumptions that they are doing." ST3 further stated the open-endedness of modeling, "Modeling can be messy. There can be different answers that students come up with that you might never have thought about."

ST1 stated the benefits of modeling in getting students to discuss and participate more in mathematics.

I get the sense that many students are scared to share answers, for fear of being wrong. One crucial way that implementing modeling could then benefit these students is to give them more 'open,' rather than 'closed,' problems, thus removing the emphasis on 'right vs. wrong', and instead giving them opportunities to just engage with the mathematics, hopefully less inhibited by a fear of being wrong.

In terms of the iterative nature of modeling ST2 stated, "I also enjoyed and noticed the cyclical nature of the modeling process. All of the components lead into each other and lend to a process that allows for multiple iterations and entry points wherever the students may be at." This was reinforced by ST3 in that modeling "allows them to come to their own conclusions/solutions."

All of the teachers except ST2 and ST3 implemented an open-ended problem. While ST2's activity could have been adapted to be a modeling activity, as implemented there was one correct answer for the task. This essential element might not have been clearly understood though or been more difficult to implement. In contrast, for the elementary teachers, both liked the open-endedness from their activities implementation.

Teachers' reflection on their activities

The teachers reflected on their implementation with four of the teachers, ST1, ST2, ST3, and ST4 stating that their students were not accustomed to doing an activity similar to mathematical modeling. ST4 wrote,

I think that as I continue to integrate more modeling type of lessons the students will become more comfortable with setting up and creating their own path for the solution. They will get more used to the idea that there isn't just one method to getting a solution and many times there are multiple solutions that are correct. ST3 found that he had been doing too much of the work in class as his "students had become too reliant on me as their teacher." ST2 wrote that modeling is beneficial to helping alleviate this problem. "I also need to work more on releasing them to have more ownership and control over their learning and I think that the integration of modeling into the curriculum would assist me in accomplishing that." The secondary teachers also felt

that they needed more work on being able to identify engaging mathematical modeling activities that all students would have access to, so that the students could engage in productive struggle.

All of the teachers stated that they planned on implementing more mathematical modeling in their classrooms and saw the positive benefits from this approach. ST1 wrote, "After observing how the modeling activity fostered engagement, discussion, and provided a challenge, I am convinced that it was a useful exercise for my students." ET2 wrote, "YES! I will continue to do mathematical modeling in my teaching...Some students have such unique ways of thinking and this is a way for them to test out their ideas and find which solutions work the best." While ET1 noted that, "Integrating mathematical modeling in your teaching is imperative."

Discussion

This study investigated in-service teachers' understanding of mathematical modeling throughout the participation in a master's level course that focused on mathematical modeling and functions. Sole (2013) notes that the training of pre-service and in-service teachers must help them understand what a mathematical model is, why mathematical modeling is important, and what classroom strategies and challenges are involved in the K-12 development, use, and assessment of mathematical modeling. These ideas were incorporated in the class setup for this study.

Research has found that in-service teachers have insufficient knowledge of mathematical modeling (Anhalt & Cortez, 2015; Gould, 2013; Kuntze, 2011; Tekin et al., 2012). The in-service teachers in this study had misconceptions and incomplete understandings at the beginning of the course, but progressed to more complete

understanding of mathematical modeling. It is vital that teacher misconceptions are uncovered and changed otherwise they will become student misconceptions about mathematical modeling.

Four of the six teachers who implemented a mathematical modeling activity were able to implement one connected to all of the essential elements for mathematical modeling (Stohlmann & Albarracin, 2016). ST3 did not use a realistic problem and ST2 and ST3 did not involve assumptions and approximations or have an open-ended problem. Knowing that the teachers have a schedule of mathematical content that they have to keep to, I had set up the class so that the teachers would have the most time possible in order to select a mathematical modeling activity to implement. Not all content is naturally connected to mathematical modeling, so it is important that natural realistic connections are used. ST2 and ST3 implemented their modeling activity close to when the assignment was due and based on their reflections, they tried to fit a modeling activity into what they had to teach for that week. This may have contributed to their selection of an activity that was missing some of the essential elements of mathematical modeling. Since the secondary teachers were first year teachers, they might have also been apprehensive about implementing a mathematical modeling problem that is more difficult to facilitate than traditional teaching.

Similarly, a study with preservice elementary teachers and Model-Eliciting Activities found that the teachers struggled with the open-endedness of the modeling tasks, which were much different than the procedural exercises they were accustomed to doing (Eraslan, 2011). In my study, the two elementary teachers did not have a problem with the open-endedness of modeling problems. The first year secondary teachers did

have more of a struggle with this as they were used to doing more teacher-directed lessons. This was in part because as first year teachers, classroom discipline is more easily managed with teacher-directed lessons. Further research is needed on how to support early career teachers to understand and implement assumptions, approximations, and open-ended problems.

The results of this study support previous research on teachers' initial understandings of mathematical modeling. Anhalt and Cortez (2015) found that more than half of the teachers misunderstood modeling as a teacher demonstration or as a visual or manipulative. Three out of the seven teachers took this approach in my study at the beginning. They felt that modeling could involve manipulatives with a teacher demonstration. Gould (2013) found that a majority of the teachers surveyed believed that modeling can involve unrealistic situations, always results in the exact answer, and does not involve choices and assumptions. While four of the seven teachers stated that modeling should involve a real world problem, none of the teachers stated that modeling problems can have multiple answers or that choices and assumptions are a part of mathematical modeling. Most of the teachers in Gould's (2013) study were states that have adopted the CCSSM and the seven teachers in this study were as well.

As a Standard for Mathematical Practice for K-12 grades and content standards at the high school level, it is imperative that teachers receive professional development for mathematical modeling. When teachers have received training on modeling they come to see the many benefits for students and are able to come to more robust understandings of modeling and how to implement it. In university classes for preservice and in-service teachers mathematical modeling should receive attention. The class activities that were

part of this study proved to be useful for developing the teachers' understandings of mathematical modeling. The GAIMME report as well as Model-Eliciting Activities are two great focuses for helping teachers better understand mathematical modeling.

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Using Technology to Enhance Educational Fieldtrips

Topic Area: Educational Technology

Presentation Format: Workshop

Description: To provide an innovative educational program which directly attract the interests of students of a new generation. Using key elements of technology such as drones, videos, and iPads to provide education through a different form of application of a scavenger hunt, to learn about BMPs (Best Management Practices), habitats, and pollution.

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Objective: To enhance the educational experience with youth who have participated in the 4-H School Enrichment Program on the Indian River Lagoon. By using technology based educational activities to allow students to take the information given to them by the teacher and apply it to real life, hands-on-learning activities. Using drones, iPads, and an interactive app to enhance the overall educational experience. Making it a lesson that will always be remembered.

Methods: Groups of students are provided with an iPad, which contain a short aerial drone video of the city park they are visiting. The video shows a bird's eye view of the cities BMP's (Best Management Practices), habitats, and various species which live at the city park. After watching the video, students are then sent on a scavenger hunt, guided by the Actionbound app on the iPad in search of the BMP's and habitats. At each waypoint students are asked a question which is related to their specific location. Students must look around at their surroundings while at each waypoint to solve the question. In order to move to the next waypoint students must provide the correct answer (each question has multiple-choice answers). After completion of the scavenger hunt, students provide feedback of the program through a survey through the Actionbound app. After completion of both the scavenger hunt and the survey, students return to the starting point to discuss what they learned.

Results: Youth who have participated in the program have a better understanding of the importance of BMPs, habitats, and the species which live at the city park because students can physically see what they are learning. Test scores from the scavenger hunt are collected through the Actionbound app. Students average scores for the scavenger hunt are 85% or higher. Discussions after the hunt shows an understanding of the BMPs, habitats, and species because students are able to see the physical locations of discussion topics, and how they can affect the Indian River Lagoon. As a result of implementing this type of alternative educational method, we have found that this can be adapted to many different types of educational topics. Why should teachers always teach students through a sit-and-get educational setting? Why not provide the information and have students transform the material with their own eyes in an environment, which helps students learn by hands-on education and sharing their ideas with others.

Conclusion: Feedback from participants of the program have concluded that youth gain experience, share experience with peers, process knowledge, generalize the knowledge, and apply the knowledge to real life experience which help them become better stewards of the Indian River Lagoon. Application of this program can help change education as a whole. Why stay in your seats when you can explore education through a fun interactive game, which provides the tools needed to be successful at learning a desired topic.

Outline of plan for the workshop for session participants: If selected to present, I will create a scavenger hunt at the conference location for participants to find coordinates. I will then provide an overview of my program which is in place. I will show both the participants side of the Actionbound application and the administrator's side. After program review, I will then provide 5 iPads and QR codes for participants. Participants can work as a group with the iPads or as an individual with their own devices. Once participants have downloaded the Actionbound app, they will scan the QR code and start the scavenger hunt. Once they have completed the scavenger hunt, they will return to the room and share what they have learned.

Title:

What's my name? Seeking consensus to a field's identity

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Abstract:

This cross-disciplinary discussion in higher education is an attempt to see if a consensus can be brought forth on the name defining a niche field in civil engineering and earth science related to geospatial data acquisition and analysis. With the growing demand of location-based services and applications, the area of this discipline has been growing. However, various names are used including surveying engineering, geomatics, geodetic science, geomatics engineering, geoinformatics, etc., depending on the institution of higher education. This makes for confusion along with difficulty for prospective students to identify programs in this field at institutions of higher education. With numerous names used in this field, it would be deemed useful if a single name can be universally implemented going forward. The importance of unifying this field around a single name that can be used in the public and identified as such would help with student recruiting, public awareness of the field as a household name, marketing, consistency, and unifying the field. This niche field is fragmented by various names. Having a unified name will provide more political clout especially for funding from private and government entities and recruitment of students as more would know what the field is by name recognition. For the field to expand through all the new technologies and practices, adding a new name each time dilutes the branding of the field. This discussion will seek to assess and analyze the field to see if there is a possible consensus on a unifying name for the field. The cross-disciplinary approach for this discussion includes a member who has a background in educational administration and leadership and taken an interest with the various names this field has associated with it. It is the hope that this can be one of the first steps to have the discussion on seeking a consensus on a unified name for this field.

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Getting More out of University Seminar: Service-Learning, Retention & Self-Change in First-Year Students

Abstract

Many courses that include a service-learning component report that students have more positive feelings about themselves after completing such projects. But, the goals of service-learning (e.g., Osborne and Renick, 2004) are not, primarily, how students feel about themselves but to have students complete experiences that have an impact on their perceptions of others (and, of course, to learn course concepts more thoroughly). The purpose of this work was to study the impact that a service-learning component might have when included in a University Seminar course – a course required of all incoming first-semester students. The question addressed is, with all other elements of the course being the same, would the completion of a service-learning component have a significant impact (from pretest to posttest) on Civic Attitudes (the other focus mentioned above), Self-descriptors used (especially comparing self-oriented versus other-oriented descriptors) and retention to the following semester?

METHODS

1. After completing the Civic Attitudes Questionnaire, a Demographic and a Spontaneous Self-Concept measure (Who Am I?), students then selected whether to complete (as part of the normal requirements of their University Seminar course) a service-learning or non-service-learning component.
2. After completion of the course, students who asked to complete a posttest assessment of the same measures (Civic Attitudes and Self-Concept description).
3. Differences between Pre and Post scores were assessed.

RESULTS

Students choosing the service-learning component were not – on the pretest measures – significantly different than those who chose the non-service-learning component.

Students choosing the service-learning component were not – on the pretest measures – significantly different than those who chose the non-service-learning component.

After completion of the project component, however, those students who completed the service-learning component had higher Civic Attitude scores than those who did not, AND the SL students were more likely to describe themselves with external descriptors than internal ones in comparison to the NSL students.

	CASQ	Internal	External
NSL	117.40	.3987	.5578
SL	123.40*	.3119*	.6881*

Pretest-Posttest Comparison

		CASQ	Internal	External
SL	Pre	117.60	.4212	.5846
	Post	123.40	.3119*	.6881*
NSL	Pre	117.08	.4035	.5965
	Post	117.40	.3987	.5578

Retention Data

From Fall to Spring, the SL students retained at a rate of 89% whereas the NSL retained at a rate of 77%.

**Hawaii International Conference on Education
Research Paper**

Title: Academic Outcomes and Experiences of Undergraduate Students Majoring in Mathematics During the COVID-19 Pandemic

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Abstract: This study examined the academic outcomes and experiences of undergraduate students majoring in mathematics during the COVID-19 pandemic. Based on a sample of 247 students at UNIV, students were asked to complete a thirty-three item survey about their experiences during the fall 2020 semester in which all mathematics courses were taught in a virtual teaching (VT) environment. Two open-ended questions asking about the greatest benefit and greatest challenge associate with taking virtual classes in mathematics were included at the end of the survey. These responses were then linked with each student's mathematics course outcomes based on institutional records. Two main findings emerged from this study. First, overall student achievement in fall 2020 mathematics courses was at least as high as that from the fall 2019 semester in which courses were taught in a face-to-face (FF) environment. And second, while a small group of students – about fifteen percent – preferred the virtual platform for their mathematics courses, more than seventy percent of respondents preferred traditional FF classes for learning mathematics. Open-ended responses underscored the strength of that preference, with a number of students expressing a highly negative experience trying to learn mathematics – especially in more abstract courses – in this way. Despite this perception, no significant differences in course outcomes were observed between students who preferred VT classes and those who preferred FF classes. There was evidence that factors associated with resilience impacted how students adapted to the virtual experience.

Keywords. mathematics, major, COVID-19, achievement, experience, pandemic

Academic Outcomes and Experiences of Undergraduate Students Majoring in Mathematics During the COVID-19 Pandemic

1. Introduction

Recent studies have reported on the experience of the pandemic on students taking college classes during the pandemic. This research has documented the personal and academic toll that many students have experienced both in the United States (Browning et al 2021; Copeland et al 2021) and abroad (Cao et al 2020; Holzer et al 2021). While similar studies have focused on the student experience, information is emerging about college student achievement during the pandemic. The *Los Angeles Times* recently reported that student achievement in the 23-campus California State University system was not diminished during the fall 2020 semester (Agrawal 2021). Similarly, the authors (2021) found that achievement among freshmen students in virtually taught first-year mathematics courses at CSUF, in fall 2020 was at least as high as that during fall 2019 in which courses were taught in a traditional face-to-face format. The current study focuses on an even more specific group – undergraduate students majoring in mathematics. The abstract nature of college-level mathematics courses, especially at the upper-division level, provides an opportunity to examine students’ experiences and academic outcomes in such courses in a virtual platform. Information gleaned from this study may help inform academic departments as colleges and universities transition into a post-pandemic era.

2. Methodology

2.1 Overview. As part of the larger study, “Virtual Teaching in Mathematics: Assessing the Impact on Course Outcomes, Students, and Faculty,” a thirty-three item survey was given during late October through mid-November to students enrolled in one or more mathematics courses in fall 2020 at CSUF. The survey was divided into eight blocks of questions asking about students’ experiences in taking online, or virtual teaching (VT), classes in fall 2020 as compared with talking traditional face-to-face (FF) classes in fall 2019.

Three research questions were posed by the larger study:

RQ1: What was the impact of virtual instruction on student course outcomes, including course success rates and course grades?

RQ2: What were students’ perceptions of their learning experiences in a virtual instructional environment?

RQ3: What were instructors’ perceptions of their teaching experiences and their students’ learning experiences in a virtual instructional environment?

This study focuses on Research Questions 1 and 2 for students majoring in mathematics. Findings associated with Research Question 3 are also included as appropriate.

2.2 Context. The California State University (CSU) is the largest public state university systems in the U.S. In fall 2020, more than 480,000 students were enrolled in one of 23 campuses. The CSU is one of the most ethnically and racially diverse university systems in the U.S. with more than one-third of its undergraduates being the first persons in their families to attend college.

This study took place at CSUF. It is one of the largest universities in California, with more than 41,000 students enrolled in fall 2020. CSUF is a designated Hispanic Serving Institution and an Asian American and Pacific Islander Serving Institution. It ranks fifth and ninth nationally in the number of baccalaureate degrees awarded to Hispanic and minority students, respectively. The mathematics department at CSUF enrolls some 17,000 students each year and employs about 90 faculty, including full-time and adjunct instructors.

2.3 Method. Two large-scale studies helped to inform the creation of the survey instrument for this study. The first is the National Science Foundation-funded National Study of STEM Faculty and Students (NSSFS): Challenges and Support during the COVID-19 Pandemic (Network for Research and Evaluation, 2020). The student component of this study focused on the effects COVID-19 has had on their relationships, academic work, and mental health. The second is the Conference Board of the Mathematical Sciences (CBMS) Special COVID-19 Impact Study survey, which was sent to mathematics departments regarding the impact of COVID-19 on mathematical sciences instruction (CBMS, 2020). The CBMS survey focuses on departmental and institutional practices as well as instructors' perceptions of their students' experiences in synchronous and asynchronous instructional environments.

These studies were pivotal in shaping the survey instrument used in the present study. For example, the CBMS survey includes two open-ended questions asking about the greatest benefit and greatest challenge adapting to online learning; the survey for the CSUF study asked the same questions of student respondents in terms of their experiences. The NSSFS survey asks about the effectiveness of "e-communication" compared to face-to-face when engaging in mentoring activities; the CSUF survey asks similar questions about different facets of teaching and learning. The CSUF study is unique because it focuses more on assessing the experience of mathematics teaching and learning from a student perspective. The CSUF study focusing on students' experiences may serve as a case study that complements the CBMS study focusing on institutional experience and the NSSFS survey across STEM disciplines.

The survey was available to for a two-week window during weeks ten and eleven of the sixteen-week fall 2020 semester. The survey was given online using Qualtrics software and took about 8-10 minutes to complete. All mathematics courses were taught in a synchronous (real-time) environment. CSUF IRB protocols were closely observed and all student responses were analyzed and reported in aggregate form. All mathematics courses were taught in a synchronous (real-time) environment. Missing data were handled using pairwise exclusion. All statistical analyses were done using SPSS, Version 27. Student course outcome data including course grade and success or non-success in the course were taken directly from institutional records and linked to that student's survey data set.

2.4 Sample. The sample group for this study included students who (1) were enrolled in a mathematics course at CSUF in fall 2020 and completed the survey; (2) self-identified as a mathematics major on the survey; (3) self-identified their gender as either male or female; and (4) self-identified their ethnicity from one of these categories: African-American/Black, Asian/Asian-American, Hispanic/Latinx, Native American/Indigenous, Pacific Islander, or White/non-Hispanic. A total of 247 respondents met all four criteria and were included in the sample. Per CSUF protocol, students self-identifying as African-American/Black,

Hispanic/Latinx, Native American/Indigenous, or Pacific Islander were classified as being from underrepresented minority groups (URM). Students self-identifying as white/non-Hispanic or Asian/Asian-American were classified as being from non-underrepresented minority groups (non-URM). Slightly more than half (52%) of the respondents were female and 48% were male. In addition, more than half (52%) of the sample was comprised of URM students and 48% were non-URM students. The four URM/gender groups, URM males, URM females, non-URM males, and non-URM females, comprised 21%, 31%, 27%, and 21% of the sample, respectively. Hispanic/Latinx students comprised 95% of the URM group and Asian/Asian-American students comprised 61% of the non-URM group (table 1). Nearly three-fifths (59%) of the students indicated that they were the first in their families to attend college and seven-tenths (71%) indicated that they were receiving financial aid (table 2). One-fourth of the students (25%) had lower division standing and three-fourths (75%) had upper division standing (table 3).

Table 1: Number of respondents majoring in mathematics by gender and ethnicity

	Afr. Am./ Black	Asian/ As. Am.	Hispanic/ Latinx	Native Amer.	Pacific Isl.	White	Total
Male	3	45	49	0	0	22	119
Female	2	27	73	1	1	24	128
Total	5	72	122	1	1	46	247

Table 2: Background characteristics of respondents majoring in mathematics (in percent)

	URM membership	First in family to attend college	Receiving financial aid
Male	43.7	53.0	69.6
Female	60.6	64.6	71.5
Total	52.2	59.1	70.6

Table 3: Number of undergraduate respondents majoring in mathematics by gender and college level

	Fresh.	Soph.	Junior	Senior	Total
Male	11	15	40	53	119
Female	17	18	35	58	128
Total	28	33	75	111	247

3. Results

3.1 Course outcomes. As a large comprehensive university, CSUF offers a wide range of courses supporting students majoring in applied mathematics, pure mathematics, teaching mathematics, and statistics. At CSUF, a successful grade outcome is defined as having completed the course with a final grade of C or better; any other grade outcome, including withdrawing from the course, is considered non-successful. Using a standard 4-point grading scale, the average (mean) grade for students in the sample was 2.64 and the course success rate was 79.0% (table 4). Of the four URM/gender groups, the highest achieving group was the set of URM females with an average course grade of 2.96 and an 88.2% course success rate. Non-URM males and URM females were next with average course grades near 2.70 and course success rate near 80.5%. URM males were the lowest scoring group with an average course grade of 2.14 and success rate of 65.4%. The average course grade for URM males was statistically significantly lower than that of each of the other three subgroups ($t > 2.2$, $p < .05$), but no other significant differences in average course grade between the four groups were observed.

Similarly, the course success rate for URM males was marginally lower than that of each of the other three subgroups ($t > 2.0$, $p < .07$), but no other significant differences in course success rate between the four groups were observed (table 5).

	N	Course grade		Course success rate	
		average	st dev	average	st dev
Male	119	2.47	1.353	.740	.441
Female	128	2.80	1.213	.836	.372
Total	247	2.64	1.290	.790	.409

	Average course grade		Course success rate	
	URM	non-URM	URM	non-URM
Male	2.14	2.73	.654	.806
Female	2.69	2.96	.805	.882
Total	2.47	2.83	.744	.839

The study also compared overall course averages in upper-division mathematics courses taken almost exclusively by students majoring in mathematics for the fall 2019 and fall 2020 semesters. During fall 2019 in which all courses were taught in a face-to-face format the average grade was 2.62 with a standard deviation of 0.556 for $n=641$ grade entries. During fall 2020 in which the same courses were taught in a virtual format the average grade was 2.71 with a standard deviation of 0.491 for $n=718$ grade entries. The difference between these two means was statistically significant favoring the virtual fall 2020 semester ($t=3.169$, $p=.002$). Thus, while different factors can affect course outcomes, there was evidence to suggest that students majoring in mathematics performed as well or better during the virtual fall 2020 semester as they had during the previous face-to-face fall 2019 semester.

3.2. Survey results. The mathematics student survey was separated into eight blocks of questions, including Likert-scale items, background information, and the two open-ended questions mentioned earlier. The eight blocks included:

1. Students' experiences taking virtual courses.
2. Amount of time spent preparing for and taking virtual courses.
3. Responsibility and stress levels.
4. Overall mathematics course experience.
5. Technology and space.
6. Transportation and parking.
7. Demographic information.
8. Open-ended questions: What was the greatest benefit and greatest challenge for you taking mathematics classes in a virtual format?

Overall, student preference for VT or FF mathematics courses leaned heavily towards FF, with 71% of the students stating that they somewhat (21%) or strongly (50%) preferred FF mathematics courses and 15% stating that they somewhat (9%) or strongly (6%) preferred VT courses. Course preference was consistent across college levels with freshmen and seniors

showing a slightly higher preference for VT classes (18%) than sophomores and juniors (11%). Questions regarding students' experiences in virtual mathematics courses showed that about two-thirds of the students preferred FF over VT in terms of their understanding of the material and overall experience and performance in the course. Overall, more than 70% of the students reported having had little or no prior experience taking classes in a virtual setting. The majority of students indicated that VT format had no effect upon their class attendance (56%) or the academic integrity (63%) of the class. Not surprisingly, most (80%) of the students reported that their interaction time with class peers was much greater in a FF setting. More than half (53%) of the students indicated that their responsibility and overall stress level was much greater in fall 2020 than in fall 2019. While access to working computers was generally not a challenge for most students, more than one-third (36%) of the respondents indicated that having a quiet place to prepare for and attend synchronous classes was a challenge. Not having to commute, find a parking place, or pay for parking was a positive factor for more than sixty percent of respondents. About two-fifths (41%) of the students thought that the VT experience was better than they had expected while 28% thought it was worse. There was evidence that the majority of students felt that taking mathematics courses in a virtual setting was more challenging than taking their other non-math classes in this same setting. For non-math courses, 47% of students somewhat or strongly preferred the FF over the VT format compared with 72% for mathematics courses.

The subset of 37 students indicating that they somewhat or strongly preferred VT over FF math classes included 7 URM males, 8 non-URM males, 13 URM females, and 9 non-URM females. The average mathematics course grade for this group was 2.89 with a success rate of 86.5%, compared with 2.61 and 77.8% for students indicating that they somewhat or strongly preferred FF over VT mathematics courses. Neither of these differences was statistically significant ($t < 1.2$, $p > .2$) (table 6). In summary, student survey responses indicated that while a small subset of the students seemed to prefer and be successful taking virtual mathematics courses, most students indicated a preference for taking mathematics courses in a face-to-face setting.

Table 6: Student preference for VT v. FF courses by course outcomes

		Prefer VT (n=37)	No preference (n=34)	Prefer FF (n=176)
Aver. course grade	Mean	2.89	2.53	2.61
	Standard dev	1.204	1.255	1.315
Course success rate	Mean	.865	.765	.778
	Standard dev	.347	.431	.417

3.3. Regression analysis. Regression analysis was performed to explore which variables may best predict preference for VT versus FF classes for students majoring in mathematics. Student preference for mathematics courses in a VT or FF format (ordinal variable) was regressed upon all of the common items included in both surveys plus gender and URM status; variable entry and exit levels were set at .05 and .10, respectively. A stepwise linear regression was used with pairwise exclusion of missing data. Four variables entered the equation: understanding of the material comparing FF to VT, course experience comparing VT to FF, overall stress level comparing fall 2020 (pandemic semester) to fall 2019 (pre-pandemic semester), and overall experience in VT mathematics courses. All variables combined gave a combined R^2 value of 0.582, thus explaining 58% of the variation in mathematics students' preference for FF v. VT courses (table 7). Demographic variables such as gender, URM status, first in family in college,

and financial aid status did not enter the equation. Likewise, academic outcome variables, including grades or success/non-success status in the fall 2020 mathematics courses, did not enter the equation.

Variable	Standardized beta	<i>t</i>	<i>p</i>
Understanding of the material (VT compared to FF)	.264	2.524	.012
Course experience (VT compared to FF)	.261	2.919	.004
Overall stress level (F19 compared to F20)	.195	2.950	.004
Overall experience in VT math courses	-.152	-2.116	.036
df = 218 R = 0.763 R ² = 0.582 F = 6.187 sig. of F < 0.001			

4. Open-ended Responses

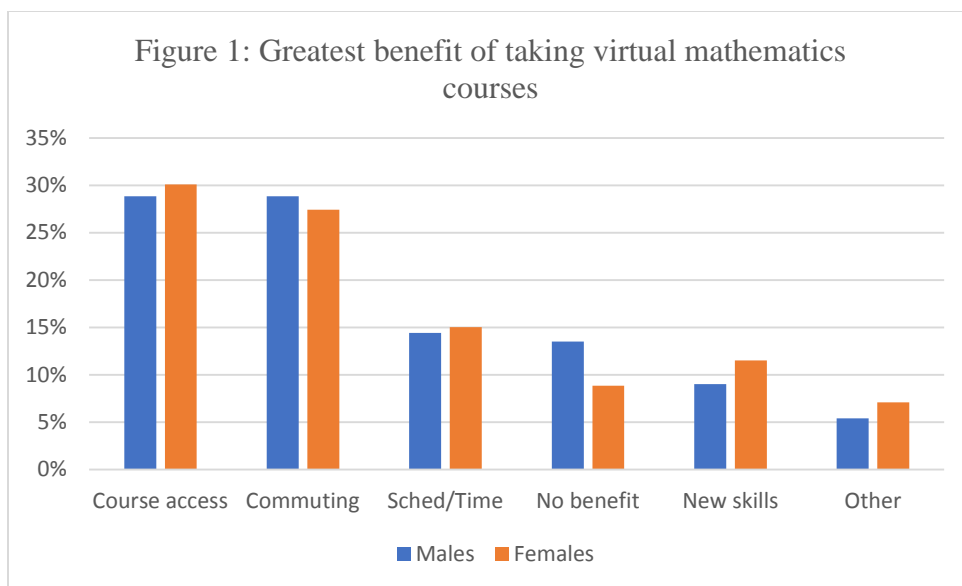
At the end of the survey students had the opportunity to respond to two open-ended questions per the CBMS (2020) survey:

Q1. What was the greatest benefit for you taking mathematics classes in a virtual format?

Q2. What was the greatest challenge for you taking mathematics classes in a virtual format?

4.1 Benefits. There were 224 responses for Q1, including 111 male and 113 female students, representing 91% of the 247 undergraduate mathematics majors in the sample. An open coding qualitative scheme based on keyword frequencies was used to categorize the responses. Six categories emerged for responses to Q1 on the benefits of VT: Commuting advantages, learning new skills, schedule and time advantages, access to the course, other, and no benefits. In the cases in which a respondent mentioned more than one benefit, the benefit given first was used for coding. Table 8 gives the frequencies of responses for each category by gender.

	Commuting	New skills	Sched/Time	Course access	Other	No benefit	Total
Males	32	10	16	32	6	15	111
Females	31	13	17	34	8	10	113
Total	63	23	33	66	14	25	224



Course access and commuting advantages and were identified as the greatest benefits by student respondents, accounting for 55% of the responses (figure 1). Responses in course access centered around the usefulness of having recorded lectures (31/66) and office hours (15/66). Student comments helped to further illuminate this experience; selected comments taken verbatim from the surveys are given here.

The online interaction seemed to work well for some students:

One great benefit of working in an online space was being able to more comfortably reach out to the professor and my classmates for assistance compared to when I take classes in person.

The greatest benefit is being able to ask the instructor a question in the chat box. I feel students who are shy find it easy to use the chat box.

Some students appreciated the accessibility to the professors and other students.

I feel like the professors are more accessible and it's easy for me to jump on zoom and ask them for help. I also think group work is easier to some extent.

The greatest benefit is that I learned to better work with other peers when collaborating.

Easier access to studying with other students. It was easier to find a time for all of us to study together since it was virtual. We also formed a study bubble for those who wanted to meet in person.

One of the greatest benefits of me taking a math class in a virtual environment was that I had amazing professors and showed that they really cared for the student's success. Being able to attend office hours and getting a hold of professors was one of the greatest benefits.

For others there seemed to be a personal element involved:

It is much easier to ask for help either to my peers or my professor. In face to face classes I can be very shy.

It's a lot easier to attend classes. Also, I am really shy in person so it was a lot easier to be more vocal in a VT setting.

I feel more comfortable attending office hours and speaking up in class in a virtual environment.

Many students mentioned the advantages of not commuting to campus, including issues related to fatigue:

The greatest benefit [was the] abundance of time due to lack of traveling to CSUF or other places. During face-to-face instruction, after driving home, there's always a moment of fatigue and tiredness due to BOTH classes and driving. During virtual teaching, after [I am] done with online classes, I only have a fatigue of classes [sic], so I am...more productive in VT compared to FF.

However, disadvantages were also noted:

The greatest benefit was to be able not make the trip [to school] to have to be physically in class, but truthfully it was also a crutch.

There may have been professional advantages for some as well:

I am taking a lot of the math education courses this semester, and taking them online helped give me ideas on how to conduct a math course online.

The categories about learning new skills and other focused mainly on the technological and financial advantages associated with the VT semester. Still, twenty-five students – more than ten percent of the sample – explicitly stated that there were no benefits associated with VT:

Absolutely none, dreadful!

I can't think of one. Math is much more difficult from home.

I do not think there is one greatest benefit in taking a mathematics class in a virtual environment. Learning math face to face is already hard as is, so to now have that completely shifted it has been pretty difficult. I am not someone who does good learning [sic] through a screen, I need the in person interaction and help and so this virtual teaching has been nothing but challenging.

Still one student summarized the potential for continuing some aspects of virtual learning once in-person classes resume:

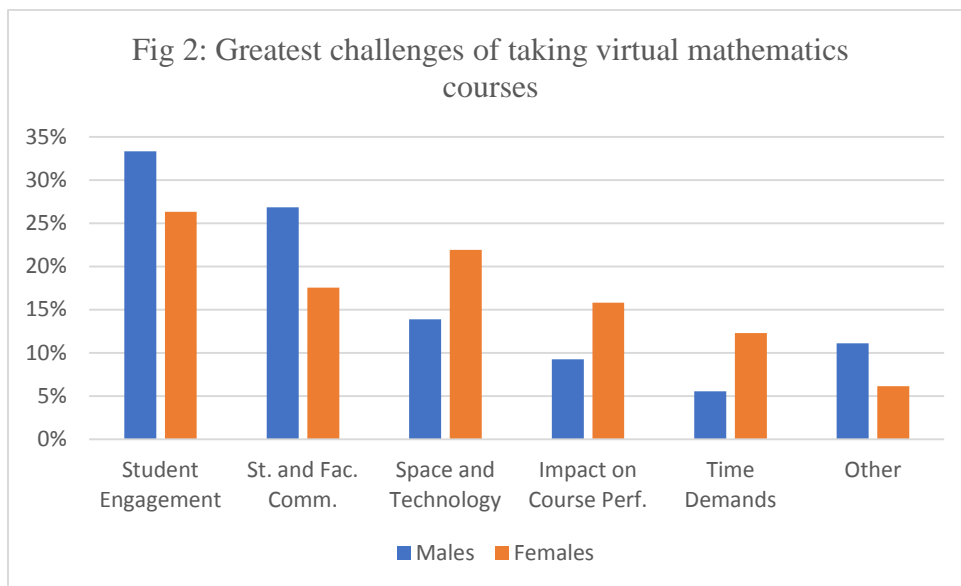
The feedback was better in a virtual environment. The online resources were too; however, we can still have those with an in-person class.

Overall, each of the six categories were comprised about equally of male and female students. Both groups identified course access and commuting advantages as benefits of virtual instruction. Some students indicated that they were personally more comfortable in a virtual rather than in-person setting. And, although not prompted to do so, more than ten percent of the respondents explicitly stated that they found no benefit in taking virtual mathematics courses.

4.2 Challenges. There were 222 responses for Q2 regarding the greatest challenge of VT courses, including 108 male and 114 female students, representing 90% of the 247 undergraduate mathematics majors in the sample. An open coding qualitative scheme based on keyword frequencies was used to categorize the responses. Six categories emerged for student responses: lack of student engagement, communication challenges with students and/or faculty, increased time demands, space and technology issues, perceived impact on course performance, and other.

In the cases in which a respondent mentioned more than one challenge, the one given first was used for coding. Table 9 gives the frequencies of responses for each category by gender.

	Student Engagement	St. and Fac. Comm.	Time Demands	Space and Technology	Impact on Course Perf.	Other	Total
Males	36	29	6	15	10	12	108
Females	30	20	14	25	18	7	114
Total	66	49	20	40	28	19	222



Issues related to student engagement and student and faculty communication were the main challenges identified by respondents, accounting for 60% of the males and 44% of the females (figure 2). Some students were quite candid about this:

To be able to stay focused in my class. It was very easy to go on my phone and forget that I was in class in the first place.

My greatest challenge is that I don't like to stare at a screen for too long so sometimes I will stop looking at my screen. It is also easier to not stop paying attention in an online environment.

Focusing while at home in my room instead of at campus which my brain associates with study.

It's a lot easier to skip classes.

A number of students wrote about feeling disconnected from the instructor and the other students:

I don't feel as motivated to do work because I don't feel as connected with people, and it overwhelms me sometimes when I'm just sitting in my room alone taking classes.

A great challenge is that I am unable to talk with my classmates so I still feel like an outsider, being a freshman, and not knowing anyone is pretty difficult when starting classes online.

I usually would study in groups but making friends virtually was harder than I expected.

One student identified an element of fear:

[I was] afraid to ask questions to the professor in office hours because I felt like everyone [else] understood the material.

Moreover, several students felt strongly that the on-line environment was directly impacting their performance in the mathematics course:

[The greatest challenge was] everything. Mathematics is a very difficult subject that I believe needs to be taught face-to-face. In VT, it goes by extremely fast, switching between different platforms on the computer, [so] it's very hard to stay concentrated [sic].

Math is not meant to be taken online, especially [abstract algebra]. This class would be hard enough in person. Now I am failing because both I am confused and the professor doesn't fully understand why I am confused due to not being in class.

Space and technology issues were identified by 14% of male and 22% of female respondents. Technology challenges centered on access to consistently working internet while space issues described both a lack of space in which to work and in-home responsibilities:

At home there are plenty of distractions plus the added responsibility such as keeping the house tidy and attending my siblings who are also in virtual learning same as me. These distractions hindered me from being able to calmly do my assignments and study.

Having a quiet space with good internet connectivity to focus on the class.

I live in a crowded environment. I absolutely have zero quiet space at home, even for exams and quizzes.

Being at home rather than on campus made it more challenging to study and to separate my home life from school work.

Dealing with family issues.

There was also awareness of what was perhaps lost by not meeting in person:

A challenge was not getting that face to face experience with some really great professors.

Some students described dealing with “zoom fatigue” as well:

Being engaged in class and focusing with the distractions around me at home. It was also hard for me to do homework since it was all on the computer; [I] definitely experienced zoom fatigue.

It's hard to have lecture for multiple hours of the day and then do online homework. Overall, there is just too much screen time. It is mentally draining.

It is difficult to stare at a screen for a long time.

Students' responses in the “other” category were, as a group, the longest ones submitted. Factors mentioned included feeling generally overwhelmed and being frustrated with the course structure and/or instructor.

I think the biggest challenge was dealing with school, work, family, and personal things all at the same time. I felt really overwhelmed with everything going on in the world. My parents and brother lost their jobs and I was

fearful for my parents who are older in age so I didn't want anything happening to them.

Motivation. I am not having much human contact and it is affecting my wellbeing. Also, I feel like my peers don't really want to talk to me or that they are super busy with their studying that I feel intimidated to ask them for help. Another challenge is my household. It is very hectic and hard to find a peaceful moment. I feel as if I am stuck inside home and barely go out. It has been very lonely. Another challenge for taking a virtual math class is that one math professor does not completely write out solutions along with us and just explains from the typed-up solution and it is very hard to follow. There is no indicator as to where we are on the page [so] I get lost. I would also say audio quality. Sometimes professors don't know how bad their audio quality is.

Attending a class where some professors do not want to help. On the other hand, you do have other professors who give you access beyond to lecture videos, office hours, and the notes done in class which is often great. I did have one professor who would be intimidating to students. Overall, the experience is well since you have a mass amount of time to study from online resources such as the virtual tutoring center. The difficulty can rise when you don't have a lot of help in upper division math classes and some professors don't care about you succeeding.

This semester has been such an emotional roller coaster with family events, and not the good fun events. So many challenges have been presented to me that I haven't been as enthusiastic to attend class or finish homework, but as a hardworking student I make sure to do so.

The greatest challenge is when instructors set up all these rules to take exams or use Proctor. We students are already nervous about our technology crashing and then having us follow all these rules makes it more nerve racking [sic].

On student perhaps summed up the greatest challenge in taking mathematics courses in a virtual setting:

EVERYTHING! Math courses should ALL be in person. I'm worried that I will not pass my last two math courses because it [sic] is not in person. This is the opinion of many of my classmates and I hope the department takes that into consideration when it comes to our final grades as well as next semester.

Finally, one compassionate student wrote:

Not having a consistent place to study and work with other math majors has been awful. I can't imagine what other students with more challenging workloads are going through.

4.3 Summary. Both male and female students expressed having to deal with feelings of academic disconnection and isolation from peers and instructors. These feelings seemed to be intensified since this was occurring in courses in the students' major area of study. Students' experiences with the way courses were structured and conducted seemed to vary from highly positive to highly negative. Overall, student concerns seemed to overshadow any perceived benefits of taking mathematics courses in a virtual setting.

5. Discussion

This study found evidence that students majoring in mathematics at CSUF had a variety of experiences with the virtual learning platform. Student outcomes in fall 2020, in which all courses were taught in a VT setting, were at least as strong as those in fall 2019 in which courses were taught in a FF setting. However, there was a perception among students that the virtual platform negatively affected their ability to understand the material, especially in more abstract upper-division courses. Feelings of disconnection and academic isolation were common, as was frustration with unreliable internet at home and not having access to quiet study space. There was also evidence that taking mathematics courses in a virtual setting was more challenging than taking non-mathematics courses in a virtual setting. The small group of students who indicated a preference for taking mathematics courses in a VT setting achieved course outcomes that were

comparable or slightly better than those of students preferring FF courses. Overall, the majority of students in the sample were clearly looking forward to a return to face-to-face instruction.

Results from the regression analysis of student preference for VT v. FF courses helped to illuminate comments and feelings expressed by students. Concern about impact on content understanding and academic outcomes, as well as overall experience in a virtually taught course and increased overall stress level explained nearly sixty percent of the variation in students' course modality preference. Notably, neither actual course grade nor success/non-success outcome in the course entered the regression equation. Likewise, concerns about technology and space which were present in student comments had no statistical predictive power for VT/FF preference. However, issues linked to course engagement and student and faculty communication emerged as factors for students' preferences for VT/FF mathematics courses. Although course outcomes are often considered as the dependent variable in regression analysis, they were included as independent variables for this study when predicting VT or FF preference in order to measure if students who were academically successful in VT also preferred VT modality. The findings from the regression indicated that students' course performance was not linked with their preference for VT or FF course modality; however, students' perceptions of their course experience clearly was. The dichotomy of perceived student experiences versus actual course outcomes underscores the possibility that the virtual course semester was not only new but possibly somewhat disorienting for many students.

The extent to which mathematics courses were more difficult for students in a virtual setting than were non-mathematics courses was not directly measured in this study. There was evidence that students felt that taking mathematics courses in a virtual format was a greater challenge than taking non-mathematics courses in this format. However, a comparison of course outcomes between fall 2019 and fall 2020 showed that fall 2020 course success rates and average course grades were at least as high or higher than those in fall 2019. In a related student of the experiences of mathematics faculty teaching during the pandemic fall 2020 semester, while there was faculty concern about issues related to academic integrity, only eleven percent of instructors disagreed with the statement that their exams and assessments "fairly and accurately assessed students' understanding of the material" (Authors 2021a). Moreover, a comparison of two highly coordinated courses, college algebra and precalculus, in which content coverage, grading standards, and exams and assessments were unchanged from fall 2019 to fall 2020 showed no differences in student course outcomes among freshmen students (Authors 2021b). Thus, while the mechanics of giving exams and assessments may have changed during the fall 2020 semester there was no clear evidence that content level or course expectations had diminished from fall 2019.

Student comments resonated with recent reports on the impact of the pandemic on college students' physical, mental, and emotional well-being (Browning et al 2021; Cao et al 2020). In addition to stress associated with academic performance during this time (Copeland et al 2021), some mathematics students felt the increased pressure of financial and family responsibilities (McCormick 2020). For at least a few respondents there was a sentiment of feeling completely overwhelmed (Aristovnik 2020; Son et al 2020). Thus, for many students there was a disconnection between their perceived experiences during the pandemic and their actual course outcomes.

6. Recommendations and Further Research

Insightful comments from students pointed towards this question: What best practices in virtual instruction should be continued when classes move back to in-person formats? In their open-ended responses, students identified at least three such practices.

1. Access to virtual course content. During the pandemic a number of mathematics instructors posted lecture notes, recorded lessons/lectures, and other class resources on their class Canvas sites which students could access at will. It is unclear the degree to which class lessons or lectures can be recorded if the class is being taught in a FF setting; this may depend on the classroom setup and the willingness of the instructor to do this. However, posting course content such as lecture notes, outside resources, or sample assessments or quizzes may be extremely helpful for many students and require a minimum of time from the instructor (Rapanta et al 2020).
2. Access to virtual office hours. In addition to possible scheduling advantages, this may help “bring out” students who otherwise might not feel comfortable coming to in-person office hours. Departments and divisions would need to be clear that on-line office hours “counted” as part of the required office hours for a course (Williamson et al 2020).
3. Access to virtual study groups. While not all students may use this option, there was evidence that for a number of students this would be extremely helpful, especially if there was a structure in place on the course website to make it easy for a student to join a group (Schwartzman 2020).

These suggestions reflect recommendations made by the Conference Board of the Mathematical Sciences (2020) for implementing best practices in online teaching of college-level mathematics courses. Other online resources are available to help mathematics and engineering departments interested in implementing these features into their classes (e.g., Purdue 2020), as well as faculty development support offered at many institutions (Adnan 2020).

The degree to which the results here are applicable to other disciplines, especially those in which the level of abstraction increases as students progress through the courses, is unclear. Further information is needed to assess the cognitive demand of such courses and the most effective settings to promote and support learning. Given the limited enrollments in upper-level courses it may not be feasible for departments to offer both virtual and in-person options to their students that are possible for multi-section courses such as college algebra, precalculus, and calculus. Further research will be required to identify and assess specific pedagogical practices in mathematics courses that are both effective and sustainable.

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The History of Gifted Education in the United States of America: Inequitable Access and
Marginalization of Black and Brown Students

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The History of Gifted Education in the United States of America: Inequitable Access and Marginalization of Black and Brown Students

The historical analysis of gifted education in the United States of America allows for a critical examination of the field's development, and practices and policies from its inception to present times. "The field of gifted education emerged during the American progressive education movement "(Jolly, 2018). As Dai (2018) stated, "in history the term "gifted" (or "giftedness) is not only use descriptively to characterize some superior performance or outstanding accomplishments but also explanatorily to point to certain personal qualities responsible for this kind of performance or accomplishments" (p. 1). Lewis Terman has been widely regarded as the "father of gifted education", however, Terman's pioneering work in the creation of intelligence tests, the first large-scale longitudinal study, and the earliest discussions of gifted education, curriculum, ability grouping, acceleration, and more has been deemed controversial (Warne, 2018). Terman's overemphasis on IQ, support for the meritocracy, and emphasizing genetic explanations for the origins of intelligence difference over environmental ones are still engrained in the classification and identification practices found in contemporary gifted education in the United States (Warne, 2018).

Charting the history of gifted education increases our understanding of the evolution of giftedness and gifted education through shifts in the definition of what is gifted, and paradigm shifts in gifted education since the inception of the field (Dai, 2018). Most importantly, looking at the history of gifted education in the United States allows for an accurate and comprehensive view of the inequitable practices and policies that have continually excluded Black and Brown students both in gifted and general education. In this paper, I will provide a history of gifted education in the United States of America detailing the classification and identification of

giftedness that promotes exclusion. Then I will discuss the inequitable practices in gifted education that have hindered access and opportunities for Black and Brown students followed by a discussion of policies in gifted education. Finally, I will provide a discourse on some of the changes necessary to promote inclusion, access, and equity for Black and Brown students in gifted education.

Gifted Education in the United States: A Brief Timeline

VanTassel-Baska (2018) stated that in the mid-1800s some early compulsory schooling laws were enacted however, gifted education practices in the United States were “sparse and uneven for another 100 years” (p. 98). While there were some schools that instituted acceleration policies and advanced coursework, the practices were not the norm nor were they universal (VanTassel-Baska, 2018). In 1957 when the Soviet Union launched Sputnik, the United States began to adopt the idea of identifying and challenging its most high achieving students where schools across the nation began instituting advanced course offerings (VanTassel-Baska, 2018). These new advanced courses aimed at high-ability students provided students with the option of “condensing coursework for early entry into college, and began to integrate more science, foreign language, and technology content into curricula “(Rimm, Siegle, & Davis, 2018 as cited in VanTassel-Baska, 2018).

In 1972, the creation of the Marland report offered the first national report that documented on the state of the field of gifted education (VanTassel-Baska, 2018). Researchers note that while the report’s recommendations were not mandated per se, the document still served as a catalyst for states developing individualized plans on gifted education that would become policy in the 1970s and early 1980s (VanTassel-Baska, 2018). The 1990s was an important time for gifted education as both the federal government and the governments of all 50

states had created some form of legislation regarding gifted education (National Association for Gifted Children [NAGC], 2010 as cited in VanTassel-Baska, 2018). However, presently in the United States, programs for gifted students are frequently underfunded because state and federal mandates often lack the provisions necessary to provide appropriate services for those who learn faster than their counterparts (National Association of Gifted Children, 2016 as cited in Brown & Wishney, 2017).

Classification and Identification of Giftedness, Screening: Equity vs. Excellence

Historically, both the definitions and theories of giftedness are normed and conceptualized on middle-class Whites (Ford, 2013b; Sternberg, 2007a, 2007b as cited in Wright et al., 2017). In their research when discussing challenging definitions and theories of giftedness, researchers Wright et al. (2017) note that since the theory of giftedness has been contextualized to equate to Whiteness, the system has inherently served to offer privileges to its target population. In the classification of giftedness, Wright et al. (2017) point out that the accepted theories used in the classification have been:

“operationalized primarily and almost exclusively by intelligence tests and achievement tests, respectively. In most schools, students must obtain an IQ score of 130 or higher to be identified as intellectually gifted and/or they must score at or above 96th percentile on an achievement test” (p. 51).

In her research on gifted education and social inequalities, Ford (2014) found that the underrepresentation of African American and Hispanic students in gifted education has persisted due to social inequities, deficit-thinking, and microaggressions that all contribute to the inequitable segregated programs. Wright et al. (2017) notes that what occurs is that the system used in the classification of giftedness is based on the belief that for a student to be gifted they

must also have a level of achievement and intelligence that uses the metrics of standardized tests for which the system deems to be both valid and reliable in measuring students' giftedness. However, what is not factored in the assessment of giftedness in this system is the evaluation of how culture as well as other demographic variables, access to opportunities, and exposure to resources factors into the evaluation of giftedness (Wright et al., 2017).

As Ford (2014) points out "the underrepresentation of Hispanic and African American students exceeds statistical chance nationally and in most school districts" (p. 147). Therefore, we must ask the critical question, what is causing the disproportionality of Black and Brown students in gifted education? To that answer, we must acknowledge the factor of discrimination where we consistently see a pattern of teachers (the gatekeepers to recommending students to gifted services and programs) not referring Black and Brown students for gifted screening, identification, and services.

Gallagher (2015) states that to understand the political issues and the debate surrounding the education of gifted students one must understand that it is based on the recognition that "education policy (including rules, regulations, financial allocations, etc.) reflects social policy (p. 77)". In assessing the history of gifted education in the United States, the literature suggests that a significant amount of research and policy development concerning equity and access in gifted education has been devoted to issues of identification and recommendation for admission to gifted education programs (Carman & Taylor, 2010; Ford, Harris, Tyson, & Trotman, 2002; Johnsen, 2011; Yoon & Gentry, 2009 as cited in Kettler et al., 2015). Previous research has consistently found that in gifted education there are underrepresentation's of students who are economically disadvantaged (Carman & Taylor, 2010), students who are Black (Ford et al., 2002), and students who are Hispanic or Latino (Ramos, 2010) (Kettler et al, 2015).

In viewing the literature on teachers' influence in the classification and identification of gifted students, research suggests that general education teachers frequently under-refer diverse students for screening and placement (Eckert-Lyster & Niileksela, 2017; Naglieri & Ford, 2003). Furthermore, research suggests that 1) general education teachers often rely exclusively on particular characteristics of gifted students that fit a checklist without realizing that all gifted children will not fit the criteria found in these exclusionary checklists; 2) teachers maintain negative perceptions and/or mistaken beliefs pertaining to gifted students and gifted education; 3) teachers are operating under a deficit-model approach where training and/or professional development has placed a focus on struggling learners and "achievement gaps", with a minimal foundation for teachers to effectively identify and provide support to high-ability learners (Eckert-Lyster & Niileksela, 2017; Eckert & Robins, 2016; Lassig, 2009; Naglieri & Ford, 2003; Speirs-Neumeister et al., 2007).

In 2019, Purdue University's Gifted Education Research and Resource Institute, GER2I, reported that for many years, research has shown that Asian, white, and higher-income students are disproportionately likely to be classified as gifted (Dreilinger, 2019). The 2019 report displayed a grim picture of the ongoing inequalities in gifted education despite efforts to find more gifted students of color and gifted students from low-income families (Dreilinger, 2019). Research has shown that most states in the nation have required their schools to find gifted children. The classification of gifted has been based on the definition of giftedness from federal guidelines. Based on this definition, gifted students are,

“Students, children, or youth who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic

fields, and who need services and activities not ordinarily provided by the school in order to fully develop those capabilities” (Dreilinger, 2019, para. 13).

Despite the accepted classification of giftedness, research has shown that a student considered gifted at one school might not make the qualifications to be classified as gifted in their neighboring state or even in their neighboring district (Dreilinger, 2019). The identification of gifted students varies widely based on state rules and oversight and education departments typically do an inadequate job of communicating the parameters in the identification of gifted students (Dreilinger, 2019). For instance, in 2019, Ohio approved 27 different tests used in the identification of gifted students (Dreilinger, 2019). In numerous states, the racial disparities and inequities in the identification of gifted students were more prevalent than in other states. For example, in Virginia, Black students make up one-quarter of public-school students, but only 11% of gifted students, in Idaho, Montana, New Hampshire, and Wyoming, each state identified less than 35 Black students as gifted, statewide (Dreilinger, 2019). South Dakota does not have a state mandate to identify or specially educate gifted students where only 31 out of almost 4,0000 African American students found in the state’s school system were identified as gifted (Dreilinger, 2019).

Access to Gifted Education: Inequitable Practices

Ford et al. (2020) states that historically, advocates for desegregating and integrating gifted education and other advanced programs such as Advanced Placement (AP) and International Baccalaureate, have been met with the more of the same mentality where students’ differences are viewed as deficits and a consistent push to maintain White over-representation in gifted education as the norm (Baldwin, 1987; Ford, 2013a; Ford & Grantham, 2003; Frasier, 1987; Hilliard, 1990 as cited in Ford et al., 2020). It is important to note that although schools in

the United States have become more diverse than any other point in the nation's history, one fact still remains, students of color, in particular African American and Hispanic students, have been continually "concentrated in racially and economically homogeneous schools where access and opportunity to gifted education, Advanced Placement (AP), and International Baccalaureate (IB) courses are limited and virtually nonexistent" (Ford, 2013a, 2013b; Orfield & Frankenberg, Ee, & Kuscera, 2014; Orfield, Kuscera, & Siegel-Hawley, 2012 as cited in Wright et al., 2017, p. 45).

Wright et al. (2017) has stated that lack of access to gifted education is prevalent in the United States, however, it is also preventable for Black and Hispanic students. Citing years of data from the Office for Civil Rights as well as national reports, Wright et al. (2017) found that deficit thinking, prejudice, and discrimination, are key culprits in creating a system that compromises the educational experiences and outcomes of gifted students of color. The data presented in the literature shows a history of the underrepresentation of Black and Hispanic students in the United States along with the contributing factors that allow the marginalization of these students in gifted education in the nation. As Wright et al. (2017) points out in their research into the underrepresented populations of students in gifted education, there is a history exclusion where the fewest resources and least advocacy is perpetrated against Black and Hispanic students. The structural inequalities found against Black and Hispanic students in gifted education in the United States mirrors the inequities found throughout the United States' educational system against marginalized populations. What we are witnessing in gifted education is what Wright et al. (2017) deemed "the persistent school segregation that limits access and opportunity to gifted education, AP, and IB courses" (p. 46). This has been a direct result and reflection of historical and contemporary residential segregation in the United States (Lipsitz,

1998 as cited in Wright et al., 2017). The issue of segregation in education in the United States includes the use of income segregation between school districts that creates inequalities in economic and social resources linked to students' achievement where "in highly segregated places, high-income children access more resources and low-income children access fewer resources" (Owens, 2018, p. 3). Research has shown that since the 1970s, nearly all states in the nation have reformed the role of local revenues in school finance, however, many states still have "regressive school finance systems in which high-income districts receive more resources than do low-income districts due to revenues from income and sales taxes" (Baker and Corcoran 2012; Baker et al. 2017 as cited In Owens, 2018, p. 3).

In their study on inequitable access to gifted education, Kettler et al. (2015) found discrepancies in educational opportunity for gifted students at the program services level. The unidentified gifted Black and Hispanic students are not being served in gifted education and, are being denied access to the education to which they are entitled and obligated to "educationally, legally, and morally" (Ford, 2014, p. 147). Equity and access have been consistently identified as a driving force in gifted education policy (Swanson, 2007 as cited Kettler et al., 2015). The National Association for Gifted Children (NAGC; n.d.) published a white paper that discusses the critical need of achieving and sustaining equity and access in gifted education (NAGC, n.d. as cited in Kettler et al., 2015). In the identification and participation practices of gifted students, equity and access are important factors that have been widely researched in literature, however, as Kettler et al's. (2015) research suggests, less attention has been given to the equitable distribution of educational opportunities after students are identified for gifted education services (Baker, 2001b; Baker & Friedman-Nimz, 2004 as cited in Kettler et al., 2015).

Peters et al. (2021) acknowledge that gifted education programs worldwide struggle with the disproportionate representation of underserved populations. In the United States, Black and Brown students, Indigenous people, majority language learners, gifted students with disabilities, and other racial and ethnic minorities are underrepresented in gifted education (Peters et al., 2021). The exclusion of Black and Brown students and other underrepresented groups in gifted education contributes to missed talent and opportunity and further supports claims of elitism in gifted programs (Peters et al., 2021).

Policies and Politics in Gifted Education

In his research into American policy in gifted education, VanTassel-Baska (2018) found that the history of gifted education policy and practice in the United States over the last five decades has been marked by a lack of sustained progress in obtaining sustained federal support. In 1988, The Javits Act was passed and remains the only federal program dedicated specifically to gifted and talented students, but it does not fund local gifted education programs (Brown & Wishney, 2017). The Javits Act's primary purpose is to fund research and demonstration projects through a competitive grant process and in 2015, approximately 3.5 million dollars was allocated to fund 11 Javits grants, which represents less than .01% of federal discretionary funding (Brown & Wishney, 2017, p. 23). Table 1 displays gifted education state policies and gifted programs funding allocation.

Table I***Gifted Education State Policies & Gifted Programs Funding Allocation***

States	Gifted Education Policy	Funding Allocation
Florida, Georgia, Iowa, Oklahoma	Mandated	Gifted programs are fully funded
Alabama, Arizona, Arkansas, Colorado, Hawaii, Idaho, Indiana, Kansas, Kentucky, Louisiana, Maine, Minnesota, Mississippi, Nebraska, Nevada, New Mexico, North Carolina, Ohio, South Carolina, Tennessee, Texas, Virginia, Washington, West Virginia, Wisconsin	Mandated	Gifted programs are partially funded
Alaska, Delaware, Illinois, Maryland, Montana, New Jersey, Oregon, Pennsylvania, Rhode Island	Mandated	No funding available for gifted programs
California, Missouri, North Dakota, Utah, Wyoming	Not mandated	Gifted programs are partially funded
Connecticut, District of Columbia, Massachusetts, Michigan, New Hampshire, New York, South Dakota, Vermont	Not mandated	No funding is available is for gifted programs

Data Source: Davidson Gifted Database, 2021

Researchers cite that discrepancies in funding and staffing across school districts in the nation can be indicative of variance in educational opportunity (Baker, 2001a; Ford, 2011 as cited in Kettler et al., 2015). In 2019, four out of 10 children attended public schools where there was not a single student identified as gifted even though most states legally require their schools to both find and serve gifted children and provide money to do so (Dreilinger, 2019, para. 3). As Brown and Wishney (2017) stated, there remains confusion over which students to include in the definition of gifted students that confounds the identification process for gifted students. The earliest researchers on the topic of gifted education, Terman (1925) and Hollingsworth (1926), characterized giftedness as raw intellectual power or simply IQ (Brown & Wishney, 2017). Therefore, “the term giftedness was synonymous with “intellectual giftedness,” and the

pioneering researchers investigated the nature and characteristics of gifted individuals only after setting minimal IQ standards for identification” (Brown & Wishney, 2017, p. 24).

Researchers stated that as the gifted education field evolved, a sense of elitism coupled with limited access to programming and resources became associated with giftedness (Brown & Wishney, 2017). Also, the students that were admitted into this elite “intellectual club” were done so based on their performance on the Stanford-Binet or Wechsler Scales (Brown & Wishney, 2017). The Stanford-Binet test is an examination meant to gauge students’ intelligence through five factors of cognitive ability: fluid reasoning, knowledge, quantitative reasoning, visual-spatial processing, and working memory (Stanford Binet Test, 2021). The Stanford-Binet test measures both verbal and nonverbal responses and the five factors of cognitive ability are given a weight and the combined score is often reduced to a ratio, the intelligence quotient (IQ) (Stanford Binet Test, 2021). The Wechsler Scale is used to measure the intellectual ability of students of different ages, in children as young as 4 1/2 years of age, and used verbal, performance, and processing speed tests as factors in determining students’ IQ, the index of general mental ability (Pfeiffer & Petscher, 2008). The perception of elitism and the social push to include more diverse students into gifted programs caused the field of gifted education to think of alternative methods and procedures to identify gifted students and to consider ways in which to serve gifted students (Brown & Wishney, 2017). Even more troubling, there remains “no coherent or systematic body of empirical research on policies or classroom practices for gifted learners has emerged” (Brown & Wishney, 2017, p. 24). As researchers point out, despite having over 70 years of research on the benefits of accelerating there remains no consistent policy on acceleration across the states in the nation, or more importantly, systematically

implemented in schools (Colangelo, Assouline, & Gross, 2004 as cited in Brown & Wishney, 2017).

In their research into policies in gifted education in the United States, Brown and Wishney (2017) found that mandated minimum competency testing has been harmful as it has created ceiling effects for high ability students, while states have provided inadequate or insufficient off-level testing to determine appropriate educational experiences for those who already meet the standards. These findings are consistent with a 2019 report from Purdue University's Gifted Education Research and Resource Institute, GER2I, that found as many as 3.6 million gifted students who would benefit from services, including large numbers of Black and Latino students, were being overlooked in schools where more than the 3.3 million U.S. public school children were already labeled as gifted. ([Dreilinger, 2019, para.1](#)).

Plucker et al. (2017) stated that policy research in gifted education has been inadequate occurring at much lower rates than other areas of research within the field such as in identification practices and talent development. Furthermore, Plucker et al. (2017) stresses that without changes and implementations of new policies in gifted education, systematic change is unlikely to materialize.

Revolution not Evolution

Many at the forefront of creating equitable practices in the identification and education of gifted students have argued that all children should be screened for giftedness and not just those students whose parents or teachers request it (Dreilinger, 2019). Furthermore, many advocates for equitable practices in the identification of gifted students err on the side of aiding more children not less and most importantly, using tasks and tests that don't rely on students being adept in math or English (Dreilinger, 2019). The last recommendation was made based on

avoiding mistaking students' early academic advantages for an overall ability to learn (Dreilinger, 2019).

In thinking about gifted education programs and services, it is critical to understand that schools are not the end products, and they should serve as an environment that nurtures students and not exclude students based on test scores. An important question to ask when teachers recommend students to gifted programs and services based solely on test scores is, "who was in the normative samples used in test comparisons?" For too long, there has been too much emphasis on tests even though they have been proven not to be objective. The solution then becomes to find other pathways to figure out whether a student should be classified as gifted.

The history of gifted education in the United States of America is a history that has systematically denied Black and Brown students' opportunities for hundreds of years. Through past and present discriminatory practices, marginalized populations, particularly Black and Brown people, have been placed at a disadvantage with a lack of access to opportunities afforded to their White counterparts. How then can the same instruments and measurements be used to identify gifted students in Black and Brown communities? All measures used to identify gifted students in marginalized populations must include equitable practices that provides opportunities from pre-k and throughout students' educational career. They must create equality of opportunity and therefore, a systematic overhaul of the measurements and instruments used in gifted education classification is critical. It is clear in assessing the history of gifted education in the United States that the disproportionately of Black and Brown students is a symptom of the disease of systemic racism.

There needs to be a new conceptualization of giftedness that celebrates the cultural and linguistic differences found in Black, Brown, and other communities of color. Important

questions that need to be addressed to create a culture of equity that will drive practices and policies in gifted education are as follows: 1) What are we doing with the testing results used to identify gifted students? Are high test scores being used for exclusionary practices in the classification and identification of gifted students? Who gets identified as gifted? Where do we get the funding for gifted education?

Currently, there are only four states in the nation where gifted programs are both mandated and fully funded, Florida, Georgia, Iowa, and Oklahoma (Davidson Institute, 2021). Of those four states, only one state has equity for Indigenous people (Davidson, Institute, 2021). States like New York and Seattle are getting rid of gifted programs due to inequities. The historical practices of inequity in the United States' education system were filtered into gifted education. Therefore, we need a restructuring of gifted education where equity is at the forefront in classification, identification, and access to gifted programs and services for all students. What equitable practices must we use to create proportional representation in gifted education? There are important considerations that need to be addressed in gifted education that include asking the question, what do we want to carry out in the restructuring of gifted education? The answers to the questions posed are important in designing an identification system that will narrow the opportunity gap which must include equitable learning practices that don't involve a student's socioeconomic characteristics. Access to gifted programs and services must not be determined by a student's zip code.

In looking at the history of gifted education in the United States, gifted education has reflected this nation's inequitable practices in P-20 education that has been used a tool for segregation. The marginalization of Black, Brown, and other students of color in gifted education has been perpetrated by using antiquated tests that have continually yielded disparate results as

the majority culture has had the power and privilege to dictate its creation. If tests are going to be used as an indicator in the determination of giftedness, test developers must consider culture and linguistic diversity in creating tests for gifted identification. Educators must cease relying so heavily on measures that have yielded disparate results. The practices and procedures used in the identification of gifted students need to be updated to reflect the times which means we must seek out the talent from the unique and diverse populations found throughout the nation's K-12 education system.

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TITLE: Followership in Education: How Competent Followers Develop Effective Leaders

TOPIC AREA: Educational Policy and Leadership FORMAT: Poster

DESCRIPTION: Competent followership is an area in need of study in education. Effective followership, leadership, and collaboration skills are necessary in K-12 educational settings, including teachers, administrators, and other educational professionals. Understanding the relational skills of the leader/follower dynamic are important to developing teacher effectiveness, a positive school climate, workplace satisfaction, and improved student and teacher outcomes.

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Abstract

Followership in itself is not a new concept. Virtually every individual spends more time in the role of follower than leader and there have been both effective leaders and followers throughout the course of history. Currently, followership as a construct for examination is relatively fresh, especially in education. In many cases, leading and following roles occur simultaneously, since most of us have a supervisor or a higher person who evaluates our work. The importance of following is rarely highlighted and certainly under-studied. In fact, this focus on leaders is at the expense of followers, fostering the belief that followers are less important (Kellerman, 2008).

Literature surrounding followership currently is found in the military and large business structures, and research conducted associated with followership exists. Comparatively, followership research in educational structures is scant with a most of the available research focused on higher education and post-secondary settings (Taylor & Hill, 2017). As schools are comprised of teachers and administrators in the roles of followers and leaders, understanding the leadership-followership dynamic provides opportunities for improving collaboration and school climate.

Literature on leadership training is its own profitable industry (Kellerman, 2008; Ready & Conger, 2003). Recently, there have been several books published that address followership as part of the discussion on leadership (see Kellerman, 2008; Schindler, 2014). This includes the practices of following established rules, implementing policy, engaging in personal and professional development, complying with instructions, and supervising or being supervised by others. As followership applies to K-12 teachers, the role of follower is in addition to teaching students daily. In examining how individuals become leaders, it is important to study the origins of leadership which lie in the practices of good followership, particularly related to education and the educational outcomes for students. It is the goal of the presenters to highlight the importance of effective and competent followers in their organizations.

Keywords: followership, leadership, teaching, administration, mobius strip
(Excerpt from book chapter currently accepted for publication)

TITLE: The Evolution of Services for Children with Autism and Developmental Disabilities in Nigeria

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TOPIC AREA: Special Education. PRESENTATION FORMAT: Poster Session

DESCRIPTION:

The authors discuss the history/evolution of services for autism spectrum disorder (ASD) and developmental disabilities (DD) in Nigeria. They note the role of Nigerian cultural beliefs, family involvement, negative societal attitudes, inadequate infrastructure and resources, and inconsistent enforcement of disability laws that limit access for students with disabilities. They discuss effective treatments for those with ASD/DD and the importance of advocating for the research-based interventions that should be taught and implemented in African nations/Nigeria.

Abstract

Provision of services for autism spectrum disorder (ASD) and developmental disabilities (DD) in Nigeria has been influenced by US and international research and efforts to increase awareness. Forces that hamper progress include Nigerian cultural beliefs, family involvement, negative societal attitudes, inadequate infrastructure and resources, and inconsistent policy and enforcement of disability laws. A lack of standardized teacher training and accreditation programs limit access for students with disabilities to individualized education programs (IEPs) and classroom inclusion. Effective treatments for those with ASD/DD are well-documented, however these effective interventions often do not reach more rural, low-income, or less developed nations or US schools. The focus of this paper is to highlight the importance of advocating for the research-based interventions that should be taught and implemented in African nations such as Nigeria. Increasing collaboration and advocacy to increase knowledge, expertise, and services is recommended within and between countries.

Keywords: Autism, United States, Nigeria, Special Education, Advocacy

Title of Presentation: A study on effective teaching practices through the use of E-books with ELL students

Topic Area of the Submission: ELL Education

Presentation Format Paper Session

Presentation Description: Presenters will describe the basis of research, summarize current strategies being used, and how we can better help our ELL students. The presentation includes an analysis of data results from Title 1, special education, administrators and general education teachers. Small groups will discuss and share current practices in education with E-books and ELL students. Participants will be able to apply this to programs by implementing E-books and other strategies that E-books can be used with.

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Abstract

English Language learners (ELL) are becoming more relevant in classrooms today (Jozwik, 2019). Teaching strategies to help ELL students improve their comprehension is becoming critical in the classroom (Pang, 2013) to advance ELL knowledge in the English language. In the 21st century, technology is heavily and constantly growing, making the push to advance students' skills and strategies using E-books (Yoon, 2013). As educators it is important to develop skills for ELL students. Despite current efforts to close the gap, ELL students are still falling behind state-wide benchmarks compared to non-English learners (NAEP, 2019). For different perspectives, the triangulation method was used for data analysis through a survey. This study was conducted to understand how educators can provide necessary comprehension strategies for ELL students. Teachers provided feedback on training received for ELL students. The survey showed results that all schools in the survey had one-to-one devices allowing teachers to bring E-

books into their classroom but lack training. Professional development is necessary for teacher preparation in the use of E-books and comprehension strategies for ELL students.

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Proceedings Submission
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1) Title of the Submission: The Effect of Career Education in an Inner-City Elementary School: Implementing a Career-oriented Unit into the Social Studies Curriculum at the Grade 4 & 5 Level

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Abstract

The following article includes a detailed description of a career-oriented unit plan integrated within the Grade 4 & 5 Alberta Social Studies curriculum at a school servicing students of low socioeconomic status. The unit plan resulted in significant improvement of career awareness and a broadening of student life goals. Moreover, students perceived the school subjects to be more personally relevant and meaningful when integrated with career development. Overall, 98% of students surveyed reported that the unit was helpful in their formulation of life goals; 84% of students agreed that the unit helped them learn a lot about themselves; 64% agreed that the unit helped them to learn a lot about careers; 80% reported that the unit made them excited about what they could do in their lives; and 84% said that the unit made them want to learn more about different careers.

The Effect of Career Education in an Inner City Elementary School: Implementing a Career-oriented Unit into the Social Studies Curriculum at the Grade 4 & 5 Level

A number of factors contribute to the career trajectory of a young student, but perhaps the most significant factors are family background factors, including “socioeconomic level, biogenetic factors, physical size, gender, ability, and temperament” (Penick & Jepsen, 1992). Students who belong to vulnerable population groups in relation to the aforementioned family background factors may lack career awareness and career planning skills needed to attain meaningful career and life goals. These same students however, are abundantly capable of forming meaningful goals. Teachers and counsellors play an especially important role in their students’ career awareness and life goals, and through various educational interventions, can and should influence their students’ career path (Hiebert, 2013). Educators are thus invariably placed with the responsibility of curbing the oppressive cycle that perpetuates the deleterious effects of systemic barriers for those belonging to vulnerable population groups. This is an especially important consideration as the field of counselling and education have undertaken a more active social justice agenda (Prilleltensky & Nelson, 2002). The following career-oriented unit plan intervention was integrated into the Grade 4 & 5 Social Studies curriculum in an inner-city elementary school, and explores facets of student self-knowledge and career awareness for the purpose of aiding students in forming early career and life goals.

Context of the Teaching Environment

The unit plan was implemented in an integrated grade 4/5 class of 28 students within an Inner City elementary school in Southern Alberta. As such, many class members came from families within lower socioeconomic brackets. Nine students were on individual program plans,

and three students were children in an English as a Second Language program. The following unit plan was thus created with respect to the classroom's diversity to be as inclusive as possible. Moreover, the school employed a multi-age curriculum structure, which required all of the grade 4 and 5 students to follow the grade 5 curriculum.

Learning Outcomes Achieved Through the Career Unit

Career Unit Objectives

The implemented unit plan specifically targeted the students' sense of identity with the aim of increasing self-confidence and self-esteem by aiding them in recognizing unique personal strengths within themselves, and in others. The learning outcomes of the career unit were as follows:

Students will:

1. Gain knowledge of their unique personal strengths, characteristics, interests, and goals.
2. Recognize how one's individuality can benefit their community and the rest of society.
3. Begin to form future, career-oriented goals.

Cross-curricular Objectives

The proposed unit plan was designed to fulfill the curriculum objectives within (a) Health and (b) Social Studies of the Alberta curriculum. However, this is not to say that the unit cannot be generalized to other subject areas, but was specifically tailored to the learning outcomes of the two aforementioned subject areas.

Health outcomes achieved. The following Health outcomes achieved by the unit plan are as follows:

L-5.2 affirm personal skill development; e.g., identify and analyze changes in personal interests, strengths, and skills.

L-5.5 relate personal skills to various occupations.

L-5.6 assess how roles, expectations and images of others may influence career/life role interests; e.g., influence of family, friends, role models, media. (Alberta Learning, 2002).

Social Studies outcomes achieved. Alberta's grade 5 Social Studies curriculum was targeted due to its exploration of Canadian history. The students thus learned how these past stories and experiences shaped Canada, which in turn have shaped the students' identity as Canadian citizens. The specific learning objectives within this subject area were:

5.2.1 Appreciate the complexity of identity in the Canadian context:

- Recognize how an understanding of Canadian history and the stories of its peoples contributes to their sense of identity.
- Recognize how changes in society can affect identity. (Alberta Education, 2006)

Detailed Description of the Career Unit

Lesson 1: Personal Identity and Career Suitability

Class Discussion. The lesson began with a class discussion on how they defined the term, *career*. The teacher wrote the students' responses on the board and discussed the students' ideas and definitions of the word on the board. With some guidance from the teacher, the class came to the conclusion that the first step in finding a fulfilling career amenable to one's individuality was to acquire a high level of self-knowledge. The purpose of the introduction was to establish how one's personal identity and meaningful career goals are imperatively related.

Drawing a web. To expand upon the concept of personal identity, the teacher instructed the class to create a *values web*. To create the web, students were to draw a circle in the middle of a blank page, and within the circle write the words, *Things that are important to me*. The

teacher explained to the students that for each idea, they were to extend a line from the circle and write down why that idea was important. They were not to limit themselves to material possessions, but to as many facets of their life and culture they felt was especially meaningful to them. The teacher provided various examples on the board and supplied additional help to students who required further assistance. Furthermore, students could elaborate upon their web by identifying and writing down the reason why each particular item was personally meaningful.

Lesson 2: Goals and Dreams

Short stories followed by class discussion. Two short stories from Chicken Soup for the Pre-teen Soul 2 (2004) were read to the class as an introduction to the lesson: *More Than I Had Dreamed Of* by Lin Rajan, and *No Place I'd Rather Be* by Kristi Yamaguchi. The teacher then led a class discussion on why it was important to have dreams and goals based on what they had learned from the stories. The stories endeavoured to lead the students to begin thinking about their own dreams and goals for the future.

Dream day activity. While students were in the process of thinking about their futures, the teacher sought to further augment their ideas through a guided-imagery activity. The activity required students to close their eyes and envision themselves 10 years into the future as the teacher read aloud a guided-imagery script (see Appendix A) that explored various facets of their future lives, which included: education, career, family, home, material possessions, hobbies, recreational activities, and friends. Students were then to write out their dream day in chronological order.

Lesson 3: Integrating Previous Themes

Short Skit. As a way to tie-in previous themes introduced in Lesson 1 and 2, the teacher acted out a short skit where she pretended to be 25 years older. The teacher walked with a cane,

spoke in an “old-person voice,” and--to the great delight of the class--conversed with various students about what they had achieved in the last 25 years. The skit ended with the teacher exhorting her students to continue pursuing their goals, and that dreams will continue to grow and evolve, even beyond 25 years into the future.

List of “past” accomplishments. To conclude the lesson, students were provided with a worksheet where they were to envision themselves 25 years into the future and list all that they had achieved (see Appendix B). They were to include as many dimensions of their life as possible (i.e. education, career, family, home, material possessions, hobbies, recreational activities, and friends).

Lesson 4: Application of Knowledge

Pride stories. Each student was provided with a piece of card-stock and a sheet of vocabulary words, which was a list of adjectives in relation to personal skills and characteristics (see Appendix C). The teacher engaged the students in a discussion on what several of the words meant, and were advised to use the list for the upcoming activity. The students were tasked to create a *pride story* where they were to write down a story of an accomplishment or life-event they found particularly meaningful or took great pride in (see Appendix D). The teacher provided various examples on the board of what she expected from the students’ stories. The stories were to be brief, and were to be shared with the rest of the class. Once the students completed their pride stories, the students were then to present their pride stories to the class.

Student presentations. Each student was provided with a marker and a small whiteboard where they were to write down two positive qualities or skills the presenter conveyed in his or her story. The teacher drew from a draw-hat to determine which student was to present. At the conclusion of each presentation, the class discussed the personal strengths and skills the

presenter conveyed within his or her story. The teacher gave each presenter a special piece of stationery where he or she was to write down the positive qualities and characteristics the other students gleaned from the presenter's story (see Appendix D). The lesson was concluded with the teacher discussing what newly found skills and characteristics the students discovered but did not know they possessed. Lastly, she advised her students that the pride story activity was merely one story, and to imagine how many more skills and characteristics could have been gathered had three or four pride stories been presented.

Lesson 5: Connecting Careers to Personal Characteristics

Brainstorming and career worksheet. In preparation for the lesson, the teacher created cut-outs out of a comprehensive list of careers, and placed the cut-outs into a jar. The lesson began with the teacher pulling out a single career from the jar and writing the job title on the board, for the purpose of discussion. When prompted, students raised their hands, and wrote down onto the board any personality traits, and skills they thought were needed to perform the job well. The teacher continued this process until the last 30 minutes of the period, which was designated for the students to complete the written assignment. The assignment required students to illustrate any career of their choice, and to list personal qualities and skills that they believed would be suitable for their chosen career (see Appendix E). The purpose of the lesson was to apply their self-knowledge onto an actual career.

Lesson 6: Aggregating Previous Themes

Personal shield activity. The final lesson endeavoured to combine previous themes into a single lesson. The teacher explained the concept of, and purpose behind provincial and territorial shields, and how art can be used to express one's cultural identity. The students were

then given the opportunity to create their own personal shields that represented their individuality (see Appendix F). The squares were divided into four sections:

- Square 1: Draw a symbol that tells something special about you.
- Square 2: Draw a symbol that tells what you'd like to be when you grow up.
- Square 3: Draw a symbol of one thing you like to do.
- Square 4: Draw a symbol of something that is important to you.

Method of Assessing Unit Effectiveness

Formative Assessment

Method. The teacher kept a daily record of every lesson's reception in terms of the students' levels of engagement, oral feedback, commitment to finishing tasks, and depth of understanding. Moreover, the teacher engaged in one-on-one discussions with every student over the course of the unit to gauge his or her personal level of interest, understanding, and engagement in the lesson's content.

Results. Levels of student interest widely varied as the unit started, ranging from severe disinterest to mild excitement. This level of engagement appeared to be present in most of the lessons as they commenced, but progressively gained acceptance over the course of the lesson. Near the conclusion of each lesson, students indicated high levels of interest and commitment to completing the prescribed tasks. Many students--some of whom rarely cared to regularly participate--were eager to share their work with the rest of the class. Sharing was initially not a part of the unit activities (with the exception of Lesson 2), but was implemented impromptu. Sharing appeared to be an effective method of concluding a class period, as students were eager and excited about the self-knowledge they had gained. Quality of student work also greatly

varied, but also steadily progressed over time as the unit proceeded. These aforementioned results suggest that the implemented unit plan was a success.

Summative Assessment

At the conclusion of the unit, 25 out of 28 students completed an evaluation form on the unit (see Appendix G). The students who did not participate in the evaluation did not do so due to truancy issues. The evaluation form consisted of three parts:

Part 1. Students were to indicate whether or not they completed the unit's prescribed activities:

Table 1

Part 1: Completion of Activities

Activity	I didn't do it	I did it
Lesson 1: What is Important to Me Web	3 (12%)	22 (88%)
Lesson 2: Dream Day Activity	2 (8%)	23 (92%)
Lesson 3: List of Accomplishments by the Age of 35	2 (8%)	23 (92%)
Lesson 4: Pride Stories	3 (12%)	22 (88%)
Lesson 5: What I Would Like to Do When I Am Older	2 (8%)	23 (92%)
Lesson 6: Who I Am Shield	1 (4%)	24 (96%)

Note: Overall on average, 91% of the students surveyed completed all of the activities. Incompleted activities were the result of student absence.

Students who did not complete the lesson's activities were either absent or transferred into the school midway into the unit.

Part 2. Students were to provide feedback on the helpfulness of each lesson. Helpfulness was defined as how personally relevant each lesson was to the students' goals. A section of Part

2 also required students to provide written feedback on what they liked/disliked about the unit or activity and how the unit could have been improved. The results of part 2 are as follows:

Table 2

Part 2: Helpfulness of Activities

Activity	Not Good at All	Good	Great
Lesson 1: What is Important to Me Web	0 (0%)	9 (36%)	16 (64%)
Lesson 2: Dream Day Activity	1 (4%)	8 (32%)	16 (64%)
Lesson 3: List of Accomplishments by the Age of 35	1 (4%)	9 (36%)	15 (60%)
Lesson 4: Pride Stories	1 (4%)	7 (28%)	17 (68%)
Lesson 5: What I Would Like to Do When I Am Older	0 (0%)	6 (24%)	19 (76%)
Lesson 6: Who I Am Shield	0 (0%)	6 (24%)	19 (76%)

Note: Overall on average, 98% of the students surveyed rated the activities as either *Good* or *Great*.

Written feedback for Part 2 were all positive and enthusiastic. Students did not generally indicate a lesson or activity they found to be their favourite or especially useful, but simply addressed the unit as a whole. Most surprisingly were the students who struggled with reading and writing who normally attempted to avoid writing altogether, decided to write positive written responses regarding how much they appreciated the unit.

Part 3. The last portion of the evaluation required students to assess the unit in relation to its learning outcomes:

Table 3

Part 3: Evaluation of Career Planning Unit

I Don't Agree	I'm Not Sure	I Agree
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1. This unit helped me to learn a lot about myself.	1 (4%)	3 (12%)	21 (84%)
2. This unit helped me to learn a lot about careers.	4 (16%)	5 (20%)	16 (64%)
3. This unit made me excited about what I could do with my life.	1 (4%)	4 (16%)	20 (80%)
4. This unit made me want to learn more about different careers.	1 (4%)	3 (12%)	21 (84%)

Note: Overall on average, 74% of the students agreed that this unit met all of the objectives

Discussion and Future Directions

The need for Career Education was considerably evident as the unit progressed. When exploring potential careers, some students had fairly unambitious career goals. Most notably, a few students expressed that the summit of their career aspirations was to be employed at Tim Hortons or other fast-food establishments. Thankfully as the unit progressed, the teacher's emphasis on dreaming, achieving, and exploring allowed many of these students to broaden their life goals. Upon extensive discussion with every student, a number of recurring themes emerged:

Theme 1: school can be meaningful. For many of the students, this was the first time they felt that school was personally relevant to their lives. Students expressed that schoolwork was meaningful, because it was a part of achieving an end-goal.

Theme 2: work can be meaningful. The idea that work could be fulfilling and personally meaningful was a novel idea. For many students, their conceptualization of the world of work was largely based on their parents' perceptions. Prior to the unit, the students expressed that they believed that the world of work could be described as difficult, laborious, and

unpleasant. The idea that work need not be a drudgery, but instead could become interesting, engaging, and personally meaningful never occurred to a considerable number of these children prior to the commencement of this unit.

Theme 3: a change of expectations. Initially, students had low expectations regarding their career possibilities. But as they began to explore various career possibilities, many students came to the realization that school and work were indeed dreadful experiences for their parents, but such an experience need not be theirs--they could create their own. A noteworthy implication arises out of this theme: if we can raise expectations, perhaps we can raise outcomes. If personal expectations are low, then net expectations will consequently be low. Such an implication would thus reveal an important factor in the cycle of poverty that entraps lower socioeconomic populations.

In light of the success of the career unit, Career Education must continue for these students. One intervention is insufficient. It would be pretentious to assume that a single career-themed unit would be all that is required to make a lasting difference. A longitudinal study on the effects of Career Education would be noteworthy in examining the long-term achievements of these students.

Students who did not agree or were unsure of whether the unit achieved its outcomes did not elucidate upon their feedback, but did remark that the lessons were fun and engaging. One reason for this discordance, points to one serious and readily apparent limitation of the unit plan: it could have implemented even more future career exploration activities had time permitted. Much of the unit's emphasis was placed on dreaming and self-knowledge; further in-depth exploration of career possibilities could have been included. It is our belief, that despite the largely positive feedback on the helpfulness of the activities, even more career explorative

integration could have been implemented in order to successfully achieve the prescribed learning outcomes. Although the unit was not initially conceived to meet the learning outcomes of Alberta's English Language Arts curriculum, future implementation should take into account the cross-curricular objectives attained by the unit as the unit activities were easily amenable to the learning outcomes of the provincial curriculum. Greater cross-curricular integration in a number of subject areas could have possibly allowed for greater outcome attainment in light of the limited time allotment provided for the unit.

The wide range of academic ability and frustration tolerance between individual students required an immense amount of creativity on the part of the teacher in order to make each lesson amenable to every student's learning needs i.e. some students functioned at a grade 2 level of reading and comprehension. Nonetheless, these same students were remarkably committed to completing their assignments and displayed an immense level of creativity and quality of work (see Appendices for examples of student work).

Conclusion

The first, and very vital step in Career Education as evidenced by the students in this study, is to broaden the horizons of their dreams, and to discover themselves in the process. Discovering aspects of personal identity and one's life goals and dreams is a necessary preliminary step to career exploration (Magnusson, 1992). Our role as educators is to instill value in our students' education by creating lessons that will allow them to attain fulfilling life goals. Only then will students find meaning in their futures. This is especially important for those who belong to vulnerable populations where the cycle of poverty and marginalization runs rampant. If educators are not addressing these systemic barriers in their curriculum, they are therefore passively condoning and sustaining these barriers. An intervention is due for the current

education system; Career Education integration is an effective and vital step in the right direction in addressing the systemic barriers of the disadvantaged people in our society.

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Appendix A

This is going to be your fantasy, your dream. Don't put up barriers for yourself (a barrier means, anything that may hold you back from doing whatever it is that you want to do). Think of yourself 10 years in the future. This means that you have already graduated from high school.

See yourself waking up in the morning. Look around the room before you even get out of bed.....Now it is time to get up. Look around your home as you go to the kitchen for breakfast. Is there anyone else there?

Now it is time to get ready for the day. You return to your bedroom and look through your closet considering what you will wear today. Are you getting ready to go to College or University, or are you getting ready to go to work?

You leave your home, think about what type of transportation you will use to get to school or work. What scenery or kinds of things do you see on your way. How long does it take you to get there?

Now you have arrived at your destination. Before going in, look around at your place of work or school. Is it a large or small building? Are you inside or outside all day? As you go in look around and see who is there. What is the atmosphere like? Is it fast paced and hectic or slow and relaxed? Are there lots of people or just one or two others, or are you alone. Who greets you? Who do you talk to?

As you start your day's activities, think about what you will do that day. Will you work with people:.....Are you designing, writing, working with your hands, drawing?....Do you work with numbers?....Do you work on a computer? Do you work alone or is there a group of people working with you? Imagine yourself going through you morning activities.

Now it is time for lunch. How will you spend your lunch hour? Have you brought a lunch or will you meet someone for lunch? Maybe you are so busy with school or work that you work right through your lunch hour. Maybe there is an activity you do every lunch hour?

The afternoon is here. Will you return to the place you were before? Do you do the same activities in the afternoon as you did in the morning? If you do not go back to the same place what will you do and where will you go? See yourself going through the afternoon's activities.

It is the end of the day. See yourself getting ready to leave. Think back over your day and think of one thing you did that day that gives you a sense of accomplishment.

How will you spend your evening? Will you go out to dinner or will you go home? Do you spend your time with others or are you alone? Think about the activities that you could do in the evening.

Now it is time for bed. As you turn off the lights in your home have one last look around. Just as you drift off to sleep, think of one thing you are really looking forward to doing tomorrow.

Now the fantasy is over. Take a few moments to adjust to the room again. When you are ready open your eyes and write down what you just imagined in your ideal fantasy.

Appendix B

Appendix C

Part 1: Please let me know if you did the activities.

Activity	I didn't do it	I did it
A. "What is Important to Me" Web	<input type="checkbox"/>	<input type="checkbox"/>
B. Dream Day Activity	<input type="checkbox"/>	<input type="checkbox"/>
C. List of accomplishments by the age of 35	<input type="checkbox"/>	<input type="checkbox"/>
D. Pride Stories	<input type="checkbox"/>	<input type="checkbox"/>
E. What I would like to do when I am older	<input type="checkbox"/>	<input type="checkbox"/>
F. "Who I am" shield	<input type="checkbox"/>	<input type="checkbox"/>

Part 2: Please let me know if you thought the activity was helpful by circling whether you thought it was "not good at all", "good" or "great".

Activity	Not good at all	Good	Great
A. "What is Important to Me" Web	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B. Dream Day Activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
C. List of accomplishments by the age of 35	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D. Pride Stories	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E. What I would like to do when I am older	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
F. "Who I am" shield	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What did you like about this unit plan?

How could this unit plan be made better?

Part 3: Please tell me how much you agree with the following statements by putting a checkmark in the box that best tells me how you feel:

Thank you very much for your help!!

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Proceedings Submission

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Abstract:

The following article describes the effectiveness of a career planning unit that was integrated into a Grade 9, Health and Life Skills curriculum. The unit plan was implemented within a Grade 9 classroom at a rural school in Southern Alberta. The unit was comprised of 4 lesson plans, 6 activities, and a number of warm-up exercises--all of which were career oriented. Overall, on average: 86.06% of students rated the activities as either *Good* or *Great*; 41.18% of students reported that the unit plan helped them learn a lot about themselves; 52.94% reported that the unit helped them learn a lot about careers; 47.06% of students stated that the unit made them excited about what they could do with their life; and 47.06% of students indicated that the unit plan made them want to learn more about careers.

Keywords: junior high school, career planning, career education, health and life skills, curriculum integration

Teaching Career Planning Skills at the Grade 9 Level: Curricular Integration into the
Health and Life Skills Curriculum

Introduction

Despite the widespread idea that the term *career* only refers to one's occupation, the word has long been defined as the totality of an individual's lifestyle, sense of overall well-being, and source of deep personal meaning (Gysbers & Moore, 1975). The guiding principle behind teaching career education is to foster particular skills that might ultimately lead students towards a deeply meaningful and fulfilling life. A need for career-oriented education has been strongly implied by Alberta's youth (Bardick, Bernes, Magnusson, & Witko, 2006; Witko, Bernes, Magnusson, & Bardick, 2006). Teachers are thus placed in a critically significant position to address this growing demand. It has been argued that career education be integrated into curriculums across all grade levels in order to meet the career needs of this current generation of students (Borgen & Hiebert, 2006; Harkins, 2000; Truong, 2011). The following paper discusses the efficacy of integrating a career-oriented unit into the Health and Life Skills curriculum, at the Grade 9 level. The unit plan's activities were designed to correspond with Magnusson's (1995) processes of career planning:

1. *Initiation*--activities are intended to advance students' self-awareness, and promote self-exploration.
2. *Exploration*--wherein students are tasked to apply their self-knowledge into specific dimensions of their life, such identifying and forming hopes for the future, forming short-term and long-term goals, identifying potential occupations, and recognizing roles within a community.

3. *Decision-making*--the students embark upon a potential career path after considering the personal implications of numerous paths.
4. *Preparation*--requisites to attaining career goals are identified, which in turn requires the student to begin making provision to fulfill these requisites.
5. *Implementation*--the student's plan to attain his or her goals is set in motion.

Context of the Teaching Environment

The career planning unit was implemented in a rural secondary school in Southern Alberta that served a local community that relied primarily on agricultural, small-scale business, warehousing, and wholesaling industries. The school had a total student body of approximately 240 students, ranging from grades 7 to 12. The unit plan's activities were tailored specifically for the school's Grade 9 class of 18 students, within the local school district's Health and Life Skills curriculum. The target classroom—as well as the school's population—was of predominantly middle-class, Caucasian descent; however, the unit's activities were designed to be relevant and respectful to students of any socioeconomic status, and sensitive to each student's cultural background. Moreover, the unit can certainly be generalized and adapted to other grade levels, with respect to the students' learning needs and the school's curriculum content.

Curricular Integration

Health and Life Skills Objectives

The following Health and Life Skills objectives as set by Alberta Education (2002) were made amenable to the unit's career-oriented direction:

L-9.2 relate the value of lifelong learning to personal success and satisfaction.

L–9.4 refine personal goals and priorities relevant to learning and career paths; e.g., investigate education programs including senior high school programs and those related to potential careers.

L–9.5 extend and improve a personal portfolio; e.g., include sample application form, personal résumé, answers to typical interview questions.

L–9.6 develop strategies to deal with transitional experiences; e.g., create a learning plan for transition to senior high school, keeping future career plans in mind.

L–9.7 analyze the potential impact of volunteerism on career opportunities.

L–9.7 analyze the potential impact of volunteerism on career opportunities.

Learning Outcomes of the Career Planning Unit

The objectives of the unit plan were as follows:

Students will:

1. Learn more about themselves, and understand the value of self-awareness.
2. Apply their self-knowledge to learn more about careers.
3. Form future goals, and become excited about what they can achieve in their life as a result of their new-found career knowledge.
4. Be inspired to learn more about different career paths.

Detailed Description of the Unit Plan

The following four lessons were implemented over a period of seven weeks, once a week, for one hour class periods. The effectiveness of each activity was evaluated at the end of the seven week period. It should be noted that Lessons 1 and 2's first initial activities were intended to be "warm-up" exercises that served to lead into the lessons' primary activities; these exercises were thus not included in the summative portion of this unit's evaluation. Moreover, each lesson

was designed to fulfill one or more objectives from the aforementioned Health and Life Skills learning outcomes: Lessons 1 and 2 was to fulfill Health and Life Skills objective L-9.2; Lesson 3 was to fulfill objectives L-9.4 and L-9.6; and Lesson 4 was to fulfill objectives L-9.2 and L-9.6.

Lesson 1: Discover Yourself

The purpose of this lesson was to introduce the students to the concepts of self-awareness and self-exploration, thus corresponding with Magnusson's (1995) first stage: initiation.

Warm-up: trust exercises. In an effort to foster a greater sense of community, and to introduce the process of initiation within a positive and comfortable class environment, the teacher led the class in a number of drama-based warm-up activities. The teacher explained that each exercise represented a skill the students were required to demonstrate over the course of the unit. The following exercises were employed:

- Relaxation—the students closed their eyes and breathed deeply as they were guided by the teacher to relax or tense-up certain muscle groups.
- Reflection—the teacher stated a certain feeling (e.g. anger, sadness, happiness, fear, frustration, puzzlement, disgust, surprise etc.), whereupon the students were to act out what they might look like with that particular feeling.
- Imitation—the teacher stated a certain job title (e.g. nurse, teacher, carpenter, astronaut, hockey player etc.) whereupon the students were to act out the title's respective job description.
- Problem solving—the teacher stated a particular problem, whereupon the students were to act out how they might solve that problem.

Activity—journalling thoughts and feelings. The lesson was concluded by having the students write a journal entry; they were to respond to the following prompt: “When I think

about the future I feel...” The teacher explained that self-reflection and self-awareness was a foundational skill in career planning, and encouraged the students to refer to skills they demonstrated from the previous exercise to write their journal entry.

Lesson 2: Personal Meaning Through Self-awareness and Goal Formation

This lesson served to transition students from the initial stage of initiation, into the stage of exploration. Students were to relate their personal interests to future goals and to understand the process of lifelong learning in achieving these goals.

Warm-up--interest inventory exercise. The interest inventory is a self-reported assessment developed by Saskatchewan Education (1995), and consists of a list of activities whereon the student was to place a hash mark by any activity he or she might find enjoyable or personally fulfilling. The activities were divided into one of six interest categories: Arts, Sciences, Industrial Arts/Home Economics, Social, Business, and Music. This inventory was by no means intended to be comprehensive in its scope of activities or categories; its purpose was to stimulate the students’ process of identifying personally meaningful activities, which in turn would serve as a foundation for Activities 2 and 3.

Activity 1—the 45-year-old question. The students were to pretend they were at the age of 45 (approximately 30 years into the future), wherein they could look back into the “past” and recall their proudest accomplishments. Students were to list their accomplishments inside their journal. The teacher advised the students to include as many accomplishments as possible, and to draw on every dimension of their life (i.e. education, career, family, home, material possessions, hobbies, recreational activities, friends etc.). This activity served to: (a) reinforce the process of career exploration; and (b) to introduce the concept of expanding one’s goals.

Activity 2—sharing pride stories. Students were divided into groups where they were to tell a personal story about a time when they felt proud to have accomplished something. As each student shared their story, the other group members were tasked to write down personal strengths and talents the storyteller exhibited in his or her story. At the conclusion of each story, students were to briefly discuss the storyteller’s strengths and talents, and why these characteristics might be helpful in achieving future career goals. The underlying goal of this activity was to reveal to the students that they each possessed a set of strengths and abilities unique to their individuality, and—most importantly—a distinct identity which they could proud of.

Lesson 3: Career Exploration

The following activities were designed to reinforce the previously-introduced concepts, and to further emphasize the process of exploration--particularly in exploring dimensions of future career prospects.

Activity 1—imagining a perfect day, and forming a meaningful goal. Much like the 45-year-old question, students were to once again close their eyes and envision themselves 30 years into the future. This time, the teacher read from a guided-imagery script (see Appendix A), that had students imagine what an ideal future day might look like, starting from the moment they woke up to the time they went to bed. At the conclusion of the exercise, the students were to journal their experience. Furthermore, they were tasked to identify in their journal entry, one life goal they wanted to accomplish. Upon identifying a goal, they were to create a *fishbone diagram* of that goal: The fish’s “spine” was to represent the student’s goal, and the fish’s “bones” were to represent what was entailed in achieving that goal (see Appendix B). In order to fill-in the diagram’s spines, the student had to answer the following questions:

1. Why is this important to you?

2. What tools/traits/skills do you need to accomplish this goal?
3. What steps do you need to take in order to accomplish this goal?

Activity 2—assessment of vocational typology. Students were to complete a self-reported, inventory-style assessment online

(<http://www.roguecc.edu/Counseling/HollandCodes/test.asp>) that would help them identify their interests, skills, and strengths. The assessment consisted of a list of items that conveyed a particular interest, preference, trait, or activity. The students were to check-off the items that they believed best described them. Upon completing the inventory, the website would sum up the student's responses into six subscales that would correspond with Holland's (1973) personality-based vocational typology:

Realistic. These individuals generally enjoy working with their hands, and can be described as being exceptionally dexterous and coordinated when engaging in motor activities. They welcome physical challenges that allow them to test their motor abilities.

Investigative. Investigative people tend to engage in research activities, and seek to understand phenomena. They possess inquisitive, curious minds and find learning to be quite meaningful.

Artistic. Artistic types will often engage in activities that involve a medium of expression (e.g. dance, drama, music, painting etc.). They often have rich inner worlds, and are primarily driven by strong emotions.

Social. Social personalities seek to interact and enjoy the company of others. They likely exhibit excellent people skills, and find meaning in helping or entertaining others.

Enterprising. Enterprising individuals are highly persuasive people who seek powerful, high-status positions. They will often engage in entrepreneurial work where they can exercise their leadership abilities.

Conventional. These individuals are typically detail-oriented, and will attune to environments that complement their strong sense of order and structure. They excel at activities that require attention and carefulness.

The teacher thoroughly described and defined each category, and explained that each student will likely be a mixture, but that each student would likely give preference to one or two dominant categories. When the students obtained their scores from the website, the website would then reveal a comprehensive list of jobs that might potentially be fitting for the student's personality. The students were free to browse and explore the list of suggested jobs, and write a journal entry on what jobs appealed to them most, and why.

Lesson 4: Solidifying Personal Goals

The final lesson was designed to introduce students to the process of decision-making, and to segue into the process of preparation. Specific career goals were identified, whereupon the students were to think of how they could possibly reach these goals.

SMART acronym. The teacher introduced the SMART goal-setting framework. The teacher explained that SMART is an acronym that was designed to help students evaluate their goals, and aid them in creating an action plan for their goals. SMART stands for:

Specific—answers the “Five W’s”: who, what, where, why and when.

Measurable—how will the goal-setter know if he or she has achieved the goal?

Attainable—how will the goal be accomplished?

Relevant—what need does this goal fulfill?

Time—how long will it take to achieve this goal?

Once the teacher felt that the students had a proficient grasp of each SMART dimension, the students were to write a journal entry that identified three short-term goals, and three long-term goals. They were to briefly explain how each SMART dimension related to each goal.

Method of Evaluating the Unit's Effectiveness

Formative Assessment Method

The teacher sought to evaluate the students' level of interest, engagement, and understanding of the unit's content. The teacher made note of student behaviour in class, throughout the course of the unit, and regularly interacted with each student in order to gauge the effectiveness of the implemented activities. Moreover, students' journals served as a valuable source of information concerning each student's: (a) grasp of the subject matter; (b) commitment to his or her career planning goals; and (c) if any of the introduced skills or concepts went beyond mere theoretical understanding and were being personally applied.

Summative Assessment

Students were to complete a three-part survey that sought to assess the overall effectiveness of the unit in terms of helpfulness, and attainment of unit objectives (see Appendix C).

Part 1. Students were to indicate whether or not they completed, or did not complete a particular activity. A hash mark was to be placed in either of the two columns, labeled "I did it" or "I didn't do it."

Part 2. Students were to indicate each activity's level of helpfulness, wherein students could circle a smiley face, neutral face, or a sad face to specify whether an activity was either

“Great,” “Good,” or “Not Good at all” respectively. This portion of the survey also included two open-ended questions where students could express what they liked or didn’t like about the unit.

Part 3. Lastly, students were to indicate whether the unit had achieved its prescribed learning outcomes, wherein a smiley face, neutral face, or a sad face constituted as “I agree,” “I’m not sure,” and “I disagree” respectively.

Results

Formative Assessment Observations

It was readily apparent that the large majority of students were committed to learning the unit’s career planning content. Students were notably engaged when the unit was initially introduced through drama-based activities. This level of engagement was readily apparent throughout the course of the entire unit. The teacher observed a few students struggling with some of the more introspective activities--particularly those activities that required them to list achievements, or to share a story of an event that they were proud of. These students stated that it was “their first time doing anything like this” or that “they didn’t have anything to be proud of.” The implications of these findings are discussed in further detail in the Discussions section.

Summative Evaluation Results

Out of 18 participants, 17 completed the summative evaluation form. One student did not complete the evaluation due to absence. The results of the summative evaluation are as follows:

Table 1

Part 1: Completion of Activities

Activity	I didn’t do it	I did it
Journalling	1 (5.88%)	16 (94.12%)
Things I Will Do Before I am 45	1 (5.88%)	16 (94.12%)

Pride Story	3 (17.65%)	14 (82.35%)
Fish Bone Self-portrait	2 (11.76%)	15 (88.24%)
Holland's Typology Inventory	1 (5.88%)	16 (94.12%)
SMART goals	0 (0.00%)	17 (100%)

Note: Overall on average, 92.33% of the students surveyed completed all of the activities

Table 2

Part 2: Perceived Helpfulness of the Activity

Activity	Not good at all	Good	Great
Journalling	5 (31.25%)	10 (62.50%)	1 (6.25%)
Things I Will Do Before I am 45	0 (0.00%)	5 (31.25%)	11 (68.25%)
Pride Story	2 (14.29%)	9 (64.29%)	3 (21.43%)
Fish Bone Self-portrait	2 (13.33%)	11 (73.33%)	2 (13.33%)
Holland's Typology Inventory	2 (12.50%)	11 (68.75%)	3 (18.75%)
SMART goals	2 (11.76%)	11 (64.71%)	4 (23.53%)

Note: Overall on average, 86.06% of the students rated the activities as either *good* or *great*

Table 3

Part 3: Evaluation of Career Planning Unit

	I Don't Agree	I'm Not Sure	I Agree
1. This unit plan helped me to learn a lot about myself.	3 (17.65%)	7 (41.18%)	7 (41.18%)
2. This unit plan helped me to learn a lot about careers.	1 (5.88%)	7 (41.18%)	9 (52.94%)
3. This unit plan made me excited about what I could do with my life.	3 (17.65%)	6 (35.29%)	8 (47.06%)

4. This unit plan made me want to learn more about different careers.	5 (29.41%)	4 (23.53%)	8 (47.06%)
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Note: Overall on average, 47.06% of the students agreed that this unit met all of the objectives

Discussion

Perceived Effectiveness of the Unit

The unit's warm-up exercises (particularly the drama-based activities) were generally well-received, and evoked a sense of excitement within the classroom. Based on student feedback from open feedback portion of Part 2 of the summative evaluation, most of the students--with the exception of one--were especially eager to begin the unit's prescribed activities. The students frequently stated that they enjoyed the idea that their career encompassed more than their line of work. Many students also remarked that they were excited to learn more about careers as a result of the unit's activities.

Self-exploration and other introspective activities were especially challenging for a number of students. As a result, many of the students indicated that they did not agree, or were unsure if the unit achieved its learning objectives. Since self-exploration was a novel idea to some of the students, some of these same students were easily frustrated when they could not produce an immediate answer for certain activity questions. Journal entries were unsurprisingly a large source of frustration, as was indicated by Table 2. Despite the high, overall levels of frustration elicited by the unit's introspective activities, the students were still especially dedicated to completing these activities. A number of students were unaware of their personal strengths, and had great difficulty in identifying accomplishments. It would thus appear that the

process of discovering one's personal attributes served as a catalyst to identify, and aspire to achieve career goals, despite the frustration evoked by this process.

Challenges and Future Directions

Students often requested for more time to complete the activities. It was abundantly evident that a single period, once-a-week, was insufficient in adequately achieving the unit's objectives. For future implementation, more in-class time should be allotted. Some students indicated that they rated certain activities as unhelpful, simply because too little time was provided in completing them. Self-exploration was a frustratingly new, yet meaningful process for many of these students, and thus more time was indeed warranted.

Based on student feedback of Part 2 of the summative evaluation, a number of students requested for even more career explorative activities. Many suggested that they be allowed to do a research project on a career of their choice. Another popular suggestion was to allow for more browsing on the web concerning future careers. This sentiment was somewhat expected, as the final step in the career planning process (implementation) was not actually integrated due to time constraints. The students' comments implied that the unit plan's heavy focus on self-exploration without an equal emphasis on career exploration left them with a sense of premature termination, without adequate resolution. One student aptly remarked, "We could have done some more career activities. Maybe we could do a presentation of a career that we would like to do." This request for more activities was a common theme, especially amongst students who indicated that the unit was not helpful and did not achieve its learning objectives. These same students were observed to be actively committed to the unit's activities nonetheless. Their negative feedback served to suggest that the unit's career explorative activities were fundamentally successful in

instilling a desire to learn more about careers, but the discernible problem was that there weren't enough career explorative activities in order to actualize and fulfill these desires.

Conclusion

The unit did not intend for the students to choose any specific career path; instead, it was to introduce them to a world of possibilities. It is our opinion that this overarching objective was achieved. Students who found the unit's introspective activities to be especially challenging, were still actively engaged and eager to learn more about careers. This finding suggests that the prescribed activities and the personal meaning these activities evoked, resonated for many of the students. We, as educators, must come to recognize when our students are undergoing a critical process of self-discovery. When the imagination is engaged, and the topic of study is personally relevant--that is when learning is truly meaningful. Self-exploration is difficult, because it is often foreign and unfamiliar. But even in the face of such difficulty, students will be committed to the fulfillment of an activity so long as it is meaningful, as was evidenced by our participants.

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Appendix A

This is going to be your fantasy, your dream. Don't put up barriers for yourself (a barrier means, anything that may hold you back from doing whatever it is that you want to do). Think of yourself 10 years in the future. This means that you have already graduated from high school.

See yourself waking up in the morning. Look around the room before you even get out of bed.....Now it is time to get up. Look around your home as you go to the kitchen for breakfast. Is there anyone else there?

Now it is time to get ready for the day. You return to your bedroom and look through your closet considering what you will wear today. Are you getting ready to go to College or University, or are you getting ready to go to work?

You leave your home, think about what type of transportation you will use to get to school or work. What scenery or kinds of things do you see on your way. How long does it take you to get there?

Now you have arrived at your destination. Before going in, look around at your place of work or school. Is it a large or small building? Are you inside or outside all day? As you go in look around and see who is there. What is the atmosphere like? Is it fast paced and hectic or slow and relaxed? Are there lots of people or just one or two others, or are you alone. Who greets you? Who do you talk to?

As you start your day's activities, think about what you will do that day. Will you work with people:.....Are you designing, writing, working with your hands, drawing?....Do you work with numbers?....Do you work on a computer? Do you work alone or is there a group of people working with you? Imagine yourself going through you morning activities.

Now it is time for lunch. How will you spend your lunch hour? Have you brought a lunch or will you meet someone for lunch? Maybe you are so busy with school or work that you work right through your lunch hour. Maybe there is an activity you do every lunch hour?

The afternoon is here. Will you return to the place you were before? Do you do the same activities in the afternoon as you did in the morning? If you do not go back to the same place what will you do and where will you go? See yourself going through the afternoon's activities.

It is the end of the day. See yourself getting ready to leave. Think back over your day and think of one thing you did that day that gives you a sense of accomplishment.

How will you spend your evening? Will you go out to dinner or will you go home? Do you spend your time with others or are you alone? Think about the activities that you could do in the evening.

Now it is time for bed. As you turn off the lights in your home have one last look around. Just as you drift off to sleep, think of one thing you are really looking forward to doing tomorrow.

Now the fantasy is over. Take a few moments to adjust to the room again. When you are ready open your eyes and write down what you just imagined in your ideal fantasy.

Appendix B

Career Coaching Across the Curriculum: Student Evaluation Form







Thank you for participating in this unit plan! I would like to know if it was helpful and how it could be made better. Please answer the questions on this sheet to help me with this.

Part 1: Please let me know if you did the activities.

Activity	I didn't do it	I did it
Journalling	<input type="checkbox"/>	<input type="checkbox"/>
Lesson 2: Things I Will Do Before I am 45	<input type="checkbox"/>	<input type="checkbox"/>
Lesson 2: Pride Story	<input type="checkbox"/>	<input type="checkbox"/>
Lesson 3: Fish Bone Self-portrait	<input type="checkbox"/>	<input type="checkbox"/>
Lesson 3: Holland's Typology Inventory	<input type="checkbox"/>	<input type="checkbox"/>
Lesson 4: SMART goals	<input type="checkbox"/>	<input type="checkbox"/>

Part 2: Please let me know if you thought the activity was helpful by circling whether you thought it was "not good at all", "good" or "great".

Activity	Not good at all	Good	Great
Journalling	<input type="radio"/> ☹️	<input type="radio"/> 😐	<input type="radio"/> 😊
Lesson 2: Things I Will Do Before I am 45	<input type="radio"/> ☹️	<input type="radio"/> 😐	<input type="radio"/> 😊
Lesson 2: Pride Story	<input type="radio"/> ☹️	<input type="radio"/> 😐	<input type="radio"/> 😊
Lesson 3: Fish Bone Self-portrait	<input type="radio"/> ☹️	<input type="radio"/> 😐	<input type="radio"/> 😊

Lesson 3: Holland's Typology Inventory			
Lesson 4: SMART goals			

What did you like about this unit plan?

How could this lesson, unit plan or school wide intervention be made better?

Part 3: Please tell me how much you agree with the following statements by putting a checkmark in the box that best tells me how you feel:

Activity	I Don't Agree	I'm Not Sure	I Agree
This lesson helped me to learn a lot about myself. □□	☹	☺	😊
This lesson helped me learn a lot about careers □□	☹	☺	😊
This lesson made me excited about what I could do with my life □□	☹	☺	😊
This lesson made me want to learn more about different careers	☹	☺	😊

Thank-you very much for your help!

Submission Title:

Creating Mirrors: Exploring the 'Critical Cultural Identity Tool' as a Means of Identity Reclamation in the Multicultural Secondary English Classroom

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Abstract: In this paper I explore scholarship surrounding providing culturally diverse students with texts in which they can find their mirrors. I then extend the conversation by examining research that highlights the inadequacy of this approach for multicultural classrooms and that articulates the need for pedagogical strategies to complement the provision of textual mirrors. In response to this, I provide a brief overview of a conceptual tool, that I am currently designing and refining. The tool, the Critical Cultural Identity Tool (CCIT) is design as a pedagogical tool for culturally diverse classrooms. I end the paper by providing a sample unit plan to exemplify how the tool may be utilized in a secondary English Language Arts classroom.

Creating Mirrors: Exploring the ‘Critical Cultural Identity Tool (CCIT)’ as a Means of Identity Reclamation in the Multicultural Secondary English Classroom

The United States of America (U.S.) is a dynamic mixture of diverse races and ethnicities, and this cultural diversity is reified in classrooms, where these learning spaces operate as microcosms of the larger society. Researchers posit that this diversity will continue to grow and evolve, pointing to a developing shift in the majority-minority racial demographics of the U.S. (Johnson et al., 2018; Krogstad, 2019; Umana-Taylor et al., 2018; Walsh, 2018). Recent statistics confirm this rapidly shifting composition in U.S. classrooms by revealing that between the period 2009-2019, Students of Color in the U.S. public school system became the majority, with White student enrollment falling to 47% (National Center for Education Statistics, NCES, 2021). These statistics are significant, as they provide a lens through which one can begin to appreciate the need to examine and reimagine curricula and pedagogical strategies to meet the needs of the diverse students in our classrooms.

Added to researchers’ focus on the increasing diversity in racial demographics is a more nuanced focus on the ever-shifting, ever-expanding ethnic identities represented in classroom spaces. Identity is positioned as a dynamic, multifaceted construct that hinges on a multiplicity of intersecting factors, and which is constantly being shaped and reshaped by a confluence of varying forces and contexts (Caraballo, 2017; Cheon et al., 2020; Gee, 2000; Ramarajan, 2014). There exists therefore a plethora of identities to be observed within any one identifiable racial or ethnic grouping, thus proving “the inadequacy of essentialist approaches to cultural diversity” (Esteban-Guitart et al., 2019, p. 8). This understanding has led to the call for researchers and educators to approach issues of identity through an intersectional lens (Crenshaw, 2017; Hill-Collins, 2016) that acknowledges the complex and varying indices that contribute to a host of differing identifications even among those who share ethnic and cultural background (Sciurba, 2014; Verhoeven, 2019). As it relates to education, researchers argue that with the increase in cultural diversity and the constant dynamic expansion of ethnic and intra-ethnic identities, curricula and pedagogical approaches cannot be packaged as ‘one-size-fits all’ (Esteban-Guitart et al., 2019; Reeb-Reascos, 2016; Woodley et al., 2017), but must be transformed to acknowledge and center students’ diversity (Ladson-Billings, 1995).

This paper responds to this need by previewing a conceptual framework that draws upon the scholarship of leading scholars such as Bishop (1990) and Ladson-Billings (1995) to articulate a pedagogical tool, the Critical Cultural Identity Tool (CCIT), that can be utilized to combat essentialist instruction in our multicultural classrooms. While this paper explores the integration of the CCIT in the secondary English classroom, the tool offers the possibility of cross-disciplinary application. I begin by situating the impetus for the design of the CCIT within the context of the literature. Next, I explore the design and goals of the tool, and then I explore my vision of implementation through the medium of a 10th-grade novel unit. Finally, I end by extending a call for collaborative feedback and suggestions, as I continue to refine the design of the CCIT.

Literature Review

In seeking to respond to the need for identity support and transformative pedagogy in our schools, much discussion has centered on the need to consider ways in which students’ cultural identities can be foregrounded in the classroom. This has led to the exploration of culturally sustaining pedagogy (CSP; Alim et al., 2020; Paris, 2012; Paris & Alim, 2014), and the

recognition, reflection, and celebration of students' multicultural identities by providing them with texts to which they can relate (Caraballo, 2017; Greer-Reid & Williams-Wengerd, 2018; Lopez-Robertson, 2017; Osorio, 2018). This need for culturally responsive texts is predicated on previous research that has demonstrated the importance of cultural representation, and the need for students to see themselves and their culture in the texts that they read (Bishop, 1990; Ladson-Billings, 1995). Bishop (1990) argues that

When children cannot find themselves in the books they read, or when the images they see are distorted, negative, or laughable, they learn a powerful lesson about how they are devalued in...society...[therefore] our classrooms need to be places where all the children from all the cultures that make up the salad bowl of American society can find their mirrors. (Bishop, 1990, p. 1).

This exploration is echoed in the work of researchers, like Ladson-Billings (1995) who proffered the theoretical perspective of culturally relevant pedagogy (CRP), defining it as “a pedagogy of opposition...specifically committed to collective empowerment” (p. 160) that teachers can employ to transform their classrooms into empowering spaces where representation is evident.

Identity in the Multicultural Classroom

In seeking to further clarify the concept of identity in the culturally diverse classroom Loterro-Perdue (2013) defines identity not as fixed phenomena, but as the dynamic “ways that individuals enact, voice, and embody certain ways of being” (p. 3). Gee (2000) describes identity as “being recognized as a certain ‘kind of person’ in a given context” (p. 99), noting that this identification can shift depending upon the various contexts (institutional, affinity, discourse, nature). This then brings to the fore the question of the role that identity plays in the teaching-learning arena. Woodley et al. (2017) argue, “Clearly, students are not homogeneous; they each face their own set of barriers based on race, gender, class, and ability” (p. 45), as such teaching cannot take a homogenous approach. Esteban-Guitart et al. (2019), in their study, referenced the development of the theoretical perspective of ‘funds of identity’ that “places the emphasis on the students’ lived experiences, identities, and meaningful activities” (p. 3).

In exploring the role of adolescent cultural identity, researchers have contributed to the exploration of three overarching concepts. The first concept is the understanding of identity as a product of intersectionality. Intersectionality is a framework that articulates the concept that an individual’s experiences and subsequent privilege or oppression must be understood from the perspective of the compounded interaction of multiple identity factors (Cassidy & Jackson, 2005; Crenshaw, 1996; Hill-Collins, 2016). Gillborn (2015), in addressing its applicability to multicultural education and student identity, argues that intersectionality is an important concept for educators to consider when framing students’ identities because it “is a vital aspect of understanding race inequity...[that] addresses the question of how multiple forms of inequality and identity inter-relate in different contexts and over time” (pp. 277-278). This is crucial in expanding understanding of the diverse cultures and ethnicities represented in U.S. classrooms. Clarke et al. (2017), in their study, aver that intersectional identities are “flexible enough to encompass both the large-scale historically constructed and hierarchical power systems... and the micro level politics of interpersonal interactions” (p. 94). Therefore, they argue, teachers need to incorporate pedagogies that honor students’ diverse identities through an interrogation of socio-political oppression in line with their intersectional identities.

The next overarching concept is that of identity as being essential for students’ developmental stability. Researchers argue that “having a clear sense of one’s identity provides

adolescents with a sense of inner identity in which they experience wholeness because they understand who they were, who they are, and who they can become” (Umana-Taylor, 2018, p. 864). Mohammad & Gonzalez (2016) added to this notion by focusing on the role that the interaction of identity social context plays in youth’s individualized selection of value systems, and Verhoeven (2019) drew attention to the importance of a strong sense of identity in youth’s ability to be resilient and confident as they make their way in the world. Borck (2020) reinforced this positioning of the role of cultural identity representation as a medium of youth development by discussing findings that support the idea that “Students whose home culture reflects school culture are more likely to experience belonging...[whereas] students whose culture is not represented (or worse, undermined, excluded, demonized) by their educational environments...are more likely to experience alienation and marginalization” (pp. 377-378).

This mention of marginalization leads to the third overarching theme that has emerged from adolescent cultural identity studies: that of identity as social justice. With this emerging theme, the notion posited is that the work of reinforcing and honoring multicultural identity in education settings is a moral imperative that speaks to the very heart of the push for social justice reformation. With this alignment of students’ cultural identity with the social-justice agenda, researchers have articulated the need for curricula and pedagogy to deliberately incorporate a focus on students’ diverse cultural realities and juxtapose this focus with an interrogation of and liberation from the systemic oppressions and injustices that they endure (Esteban-Guitart et al., 2019; Freire, 2000; Glass, 2019). Montero (2019) posited that social-justice researchers ought to embrace the “understanding that education is not a politically neutral undertaking...by identifying and learning more about students’ pluralistic cultural...realities...and writing them into the curriculum in transformative and justice-seeking ways” (p. 699).

Culturally Sustaining Pedagogies

This discussion of incorporating students’ identities into curricula and pedagogy opens the focus to consider ways in which students’ cultural identities can be foregrounded in the classroom. This leads to an exploration of culturally sustaining pedagogy (Alim et al., 2020; Paris, 2012; Paris & Alim, 2014) and the use of texts that recognize, reflect, and celebrate students’ multicultural identities. These frameworks push back against the normalized conceptualizations commonly propagated by texts that offer White euro-centric lenses that deny the variety of identities that multicultural students bring to the classroom space (Caraballo, 2017; Greer-Reid & Williams-Wengerd, 2018; Osorio, 2018). Lopez-Robertson (2017) added to this call by asserting that “children need to ‘study intelligently and from their own point of view’ [with] access to multicultural literature written by cultural insiders” (Lopez-Robertson, 2017, p. 48).

In reporting on their study that assessed the impact of this approach, Emerick et al. (2020) shared that culturally sustaining pedagogy transformed classrooms into “places where students could engage in dynamic language and cultural practices” (p. 305). Other researchers point to the ways in which CSP in the multicultural classroom served to empower and energize students, affording them opportunities to not only express themselves in culturally affirming ways, but to also resist and counter racism and social oppression (Glenn & Ginsburg, 2016; Tintiangco-Cubales et al., 2015). Flynn (2018) focused on the agency that this provided to students, commenting that “children did the evaluating, valuing, and promoting of ways of ...developing literate identities” (p. 601).

While the push to incorporate texts in which students can find their cultural mirrors is excellent, there are certain concerns. Access to these culturally sustaining texts is not the same across the board, and the nature of author and character diversity is still not as robust as it could be (Glass, 2019; Johnson et al., 2018). Additionally, there is the danger of essentializing ethnic diversity and unintentionally reinforcing stereotypes (Sciurba, 2014). In fact, ethnic identity is such that “within-group differences are oftentimes larger than between-group differences” (Umana-Taylor et al., 2018, p. 864). In short, the danger exists that in selecting texts that reflect students’ culture, educators may find themselves negating the various intersections of students’ identities.

There is an added danger to essentializing culture. By trying to provide mirrors, teachers run the risk of creating painted windows; windows that do not look out upon the true world of a culture but provide a static one-size-fits-all image that may then warp the representation and understanding of that culture in the eyes of those students who have not lived it. In other words, students in classes for whom these cultures are new, may walk away with an overgeneralized idea of what life is like for other students within that cultural group, thus reifying stereotypes (Braden, 2016). Additionally, because America’s classrooms are so multicultural, it stands to reason that a text that is culturally affirming for some, may prove to be culturally negating for others, or may exclude them altogether. Culture is so multifaceted that sometimes, even the books that reflect cultural diversity, do not have a mirror for the students sitting in classrooms.

As a nation, the U.S. has immigrants from over 200 countries who speak a plethora of languages (Immigration Data and Statistics, 2021) and who represent a wide array of ethnicities. What happens now that this diversity is reflected in our classrooms? Certainly, teachers cannot find books that represent all the facets that our diverse students bring. Also, there are certain texts which just do not explicitly provide mirrors for anyone sitting in classrooms today, but whose value as cultural touchstones of eras past, or whose inclusion in the canonical halls of ‘the classic’ keep them firmly entrenched on curricular agendas nationwide.

Considerations such as these define the gap that this conceptual paper addresses. This gap is the need for a toolbox of culturally sustaining pedagogical strategies that can be used in the classroom to complement the use of culturally affirming texts (Esteban-Guitart et al, 2019; Umana-Taylor et al., 2018). What if instead of focusing on the dearth of multicultural novels, educators equipped their students to talk back to the authors of the books that they *do* have from a position rooted in students’ multicultural identity? What if we were to embrace this absence not as a deficit, but as an opportunity to reaffirm identity? How would this influence agency in literary studies in English classrooms? Schools are preparing multicultural students for a world that will not always recognize them, their cultures, or their particular identities. Students need to be given the tools to find themselves, carve out their space, and create the mirrors when mirrors are absent.

Conceptual Framework: The Critical Cultural Identity Tool (CCIT)

This exploration of how to equip students to create their own mirrors has led to my current work, where I am exploring the development of a Critical Cultural Identity Tool (CCIT) that can work as a pedagogical framework to complement Bishop’s (1990) *Books as Mirrors, Windows, and Sliding Glass Doors* and Ladson-Billings’ (1995) *Culturally Relevant Pedagogy*. The CCIT rests on the premise that there is no possible way for policy and pedagogy to articulate a single approach that can allow us to offer mirrors for all the intersecting identities of all the students in our classrooms. As such, strategies need to be explored that can provide students and

teachers with the tools to create their own mirrors in agentive ways. It relies upon the combined frameworks of intersectionality (Crenshaw, 1996, 2017; Hill-Collins 2016) and Gee's (2000) four types of identity.

The term 'critical cultural identity' is predicated on Freire's (1968) notion of the critical consciousness, and it is used to refer to a person's articulation of who they are and who they are becoming based upon various intersecting aspects of their culture and a heightened awareness of how socio-political forces impact these varying facets, whether negatively or positively. The tool examines identity connected to eight different facets (generation, gender and sexuality, constructs of race, citizenship, morality, community, socio-economic status, and family structure), and how these facets interact within the contexts of nature, institution, affinity groups, and discourse. The idea behind the CCIT is to raise students' critical consciousness of the many facets of who they are, by inviting them to examine how these facets are: (1) constantly intersecting and evolving and to interrogate how they are (2) constantly being shaped by interactions with institutions, affinity groups and discourse about them. Beyond inviting this exploration, it actively fosters the opportunity for students to become active in this process to resist mirrors that negate or misrepresent them, and to author their own mirrors based on all of who they are and who they are becoming, in these varying contexts.

As a tool, the CCIT is untried as it has yet to be applied in a research setting. It is also arguably complex, which is a direct reflection of the fact that it is in the early stages of its conceptualization. Over the years, as I conduct research using the CCIT, I will be able to refine its parameters. However, I believe that the CCIT has the potential to help in the continued transformation of liberating asset-based pedagogies for multicultural classrooms. In the section that follow, I present a sample unit from a 10th grade English class that showcases one way in which the CCIT might be employed by teachers.

Sample Unit Plan Utilizing the CCIT

Unit Overview

The unit plan outlined below demonstrates how the CCIT could be employed as a tool in a short story unit for high school students. As expressed earlier, while the example presented here is situated in an English classroom, the CCIT is a multi-disciplinary tool. The short story explored in this unit is "*American History*" by Judith Ortiz Cofer. This story is positioned as a culturally sustaining text because it is written by an Hispanic author, and it features a main character who is Hispanic. It also invites readers to tackle issues such as racial and ethnic discrimination, as well as systemic oppression at the institutional and governmental levels. As such, it is a strong example of a text with mirrors for Students of Color. However, a closer look leads to a discussion of just how accurate its mirrors are for the various cultural and ethnic identities of students sitting in US classrooms. Does the representation reinforce stereotypes or negate some students altogether?

Sample Unit Objectives

By the end of the unit, students will be able to utilize the CCIT to:

- Articulate their narratives of self through journaling and critical discussions
- Analyze the use of imagery and language within the story

- Analyze the role of identity-shaping forces within the story
- Evaluate and deconstruct stereotypes presented in the story
- Interrogate and push back against community and cultural (mis)representations through discussions and writing
- Create mirrors that represent who they are and who they envision themselves and/or communities to be within the context of the story

Unit Pre-Work: Getting Started

<i>Focus</i>	<i>Learning Activities</i>	<i>Questions and Resources</i>
<p>Exploring Identity (Using the CCIT to Articulate Narratives of Self)</p>	<ul style="list-style-type: none"> • To prepare students for the analysis that they will conduct during the unit, the teacher would present students with the CCIT, and focus their attention on the four sections/facets that are implicated in the story: community structure, socio-economic status, concepts of race, and family structure. Students should be invited to journal their reflections of how each of these facets influences how they view themselves and how their society views them. • After reflective journaling, students should be invited to participate in a circle discussion, where they share their responses and respond thoughtfully and critically to each other's perspectives. This will provide students with the opportunity to chart their own discourse about who they are, while participating in discussions that can serve to expand awareness of each other's critical cultural identities, while deepening understanding and appreciation across differences, and opening avenues to explore similarities. 	<ul style="list-style-type: none"> • Students could be asked to reflect in writing on the following: How would you describe the socio-economic status of your family and/or community? How does this influence how you define who you are as a person? How do you think the socio-economic status of your family and/or community influences how your family/community sees you and itself? How do you think this status influences how others outside your community and/or family see you? How do you feel about these perceptions: do you agree with them, disagree, or do you sit somewhere in the middle, and why? • Students should be given similar reflective questions based on each of the four identified facets to be engaged in the unit.

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During the Unit

<i>Focus</i>	<i>Learning Activities</i>	<i>Questions and Resources</i>
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<p>Reading the Story With Gee’s (2000) Identity Types as a Framework for Analysis</p>	<ul style="list-style-type: none"> The teacher should remind students of the four identity types outlined by Gee (2000) and provide them with the opportunity to reacquaint themselves with the definitions and clarify any points of confusion. The teacher should also provide students with a pre-reading worksheet, like the one below, where students will be able to take notes as they read. Next, the class will read the short story “<i>American History</i>” by Judith Ortiz Cofer. As the story is read, students will be able to take note of the various identity forces evident in the text. In taking note of the forces present in the story, students will be guided to focus on how these forces interact with the identity facets of community structure, socio-economic status, concepts of race, and family structure, and how these interactions shape the messages about identity that the story sends Critical Circle Discussions of (Mis)representation: The 	<p>Notes Sheet</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Institution(s)</td> <td style="width: 50%; padding: 5px;">Affinity Group(s)</td> </tr> <tr> <td style="width: 50%; padding: 5px;">Discourse</td> <td style="width: 50%; padding: 5px;">Nature</td> </tr> </table> <ul style="list-style-type: none"> For example: what institutional forces do you see at work and how do they work based on characters’ socio-economic status or race/ethnicity? What are the affinity groups present in the text and how are these shaped by family structure or community structure? Some Questions to Ask 	Institution(s)	Affinity Group(s)	Discourse	Nature
Institution(s)	Affinity Group(s)					
Discourse	Nature					

	<p>teacher can choose to pause at prespecified points throughout the story to facilitate critical conversation, or the teacher may choose to read through the entire story and then facilitate critical conversation.</p>	<p><u><i>(Mis)Representation</i></u> For whom does this story provide a mirror? Is it an accurate mirror? Do you think that it is stereotypical or discriminatory? Why or why not? What aspects of representation do you want to embrace, counter and/or resist? Based on your reflective journaling and the pre-reading discussions, how would you characterize the alignment between the mirrors in the text and your own definition of who you are?</p> <p><u><i>Negation</i></u> For whom does this story provide no mirrors? How would you respond to this exclusion based on who you are? How would you write yourself into this story, and to what extent would that transform the story? Why?</p> <p><u><i>Intersections and Interactions</i></u> How does the story present the interactions between the four identity types and the more nuanced facets of who you are? What are your reactions to this interaction? Does this presentation help you to gain a deeper understanding of the socio-political issues that impact you, or do you think that this representation is inaccurate?</p>
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Wrapping up The Unit

<i>Focus</i>	<i>Learning Activities</i>	<i>Questions and Resources</i>
<p>Creating Mirrors</p>	<ul style="list-style-type: none"> The teacher should end the unit by providing students with the opportunity to author their own mirrors. This opens the space for students to determine the extent 	<ul style="list-style-type: none"> Some students may choose to respond creatively via poetry or short story, while others may choose to write an op-ed-style essay. However, it is important to

<p>Sharing</p>	<p>to which they wish to counter or embrace the mirrors in the text. Additionally, the CCIT, as a pedagogical tool, advocates for student agency within the learning process. As such, students would be given the opportunity to choose the medium through which to respond to the representation in “<i>American History</i>” by Judith Ortiz Cofer.</p> <ul style="list-style-type: none"> • To close out the unit the teacher should provide opportunities for students to influence the discourse about them by sharing discourse created by them. As such, students would be allowed to share their responses to the text, and their discourse would be reinforced by the recognition from their peers and their teacher. 	<p>provide students with the opportunity to choose a medium that they feel best expresses their authentic response and creates the best mirror for them.</p>
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Discussion

In her articulation of the need for culturally diverse students to see themselves in what they read, Bishop (1990) argued that “reading [should be] a means of self-affirmation...[where] we can see our own lives and experiences as part of the larger human experience” (p. 1). She presented texts as serving three possible purposes for culturally diverse students: offering them mirrors of themselves, presenting them with windows into other cultures and experiences, and providing sliding glass doors that open possibilities of navigating multiple spaces (Bishop, 1990; Jiménez, 2021). These functions she articulated to emphasize the importance of transforming the experiences of culturally diverse students in the US who are made to engage with and learn from texts that negate them completely, or limit their inclusion (Bishop, 1990). All three of these functions of texts are important to consider when designing pedagogical tools to serve the culturally diverse students in our classrooms. The CCIT takes all three of these functions into consideration. Not only is it positioned as a complement to texts that provide mirrors, but it works to clarify those mirrors through student agency. Additionally, it opens room for other students to be shown windows that do not present cultures as monolithic, but that offer rich depth and texture to cultural experiences and various ways of being. Finally, by providing space for students to create their own mirrors, the CCIT makes room for the sliding glass doors that Bishop speaks of, where those whose identities have been negated can now have the opportunity

to enter those spaces that excluded them, in an empowered way that claims recognition and inclusion on their own terms.

The CCIT also builds upon the work of Ladson-Billings (1995), who argued that teachers need to provide rigorous instruction and have high academic expectations for their students. She posited that teachers need to be aware of the multiplicity of cultures in their classrooms and be equipped to center, support, and incorporate cultural differences from a place of reflexivity, acceptance and welcome. Teachers, Ladson-Billings averred, also need to engage in pedagogy that interrogates inequities in society that impact their students, and work to challenge and transform sociopolitical contexts. With the CCIT, teachers can center the various cultural identities within their classrooms, while examining and working with students to counter systemic oppression and injustice.

The goal of the CCIT to open pathways for culturally diverse students to resist dominant narratives and author their own mirrors rests directly upon the framework of Critical Race Theory (CRT) and, more specifically, the tenet of counternarratives (Delgado & Stefancic, 2017). The CRT tenet of counternarratives focuses on the crafting and proliferation of narratives that directly push back against dominant racist narratives of deficit. Ladson-Billings (1998) positions the tenet of counter storytelling as the act of “naming one’s own reality” (p. 13) that calls out oppressive policies, heals racial trauma, and exposes the hypocrisy of oppressors. This definition of counternarratives highlights the need for us to employ policies and pedagogical strategies that put the pen in the hands of our culturally diverse students so that they can create their own mirrors; mirrors that can serve them and others in the quest for liberation.

Researcher Positionality and Limitations

I moved to the United States from Jamaica early in my teaching career, and since then, I have both studied and taught in the US education system. As such, I have been impacted by my personal experiences with multicultural identity reaffirmation, as well as by the experiences of my students, most of whom were first or second generation immigrants. This experience led me to realize the systemic erasure of ethnic identity, and as a teacher, I endeavored that everything that I did was undergirded by the goal of working towards social justice and ethnic identity affirmation. This personal-professional identity has impacted my researcher identity, as I now position myself as a critical researcher, operating under the premise that “reality is...over time, shaped by a congeries of social, political, cultural, economic, ethnic, and gender factors” (Guba & Lincoln, 1994, p. 110), and there is a need for negotiation of knowledge among participants; a sort of dialectical relationship that can lead to the co-creation of new knowledge and the empowerment and honoring of personal experiences and epistemologies (Cronenberg, 2018; Kivunja and Kuyini, 2017; Scotland, 2012). I therefore conduct research through the lens of the interpretive paradigm.

Ethical Implications

My goal is to engage in research with the CCIT to continue to refine and develop the tool. There are several ethical issues that I am considering as I prepare to embark on research. One such issue is the risk of further marginalization and misrepresentation (Creswell, 2015), especially during the process of research implementation. The paradoxical nature of social justice research is such that the researcher must remain constantly aware of the delicate balance between passionate advocacy for a marginalized group and the imposition of presupposed notions of what is deemed necessary for the group. Because, as a critical dialectical researcher

my goal is to root out injustice and work towards transformation and empowerment, I must engage in constant reflexivity to ensure that I am not imposing my epistemologies upon future research participants, but that I am giving them the space to own their truth. Likewise, I must remain vigilant that in telling their stories I do not inadvertently reify stereotypes through (mis)representation or reduce my participants to a single story.

Another ethical issue that I am currently examining is the vulnerability of the topics and the participants (Cronenberg, 2018); a feature that is part and parcel of social justice research. To compound this, the nature of identity exploration itself promotes openness to the point of incredible vulnerability. The task therefore is to explore ways to create a safe space within the context of my future research, where participants will be protected and supported fully.

Invitation for Feedback and Suggestions

These concerns help to frame the invitation that I now make to fellow scholars within the academy. As I am working towards research design and implementation of the CCIT, I am open to feedback and suggestions that will help me to refine the tool, as well as feedback that I can draw on to ensure a safe and supportive research environment for participants.

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Beyond Project-based Learning

An Innovative Approach to Making Subject Matter Fun, Rigorous, and Engaging

Presented by Bill Overton, EdD.

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Topic areas: Elementary Education
Cross-disciplinary Areas of Education
Curriculum Development
Teacher Education
Social-emotional Learning
Social studies & Science curriculum

Presentation Format: Workshop

Brief description of workshop:

During this workshop, Dr. Overton will describe his 40+ year experience in education where he used many project-based learning strategies but with totally integrated and interdisciplinary projects that lasted over 5 months. He called these going beyond project-based learning. In a highly interactive manner, he will demonstrate opportunities for personalizing curriculum, using formative assessment, addressing social and emotional concepts, practicing dramatic skills, designing real-time experiments, and more, all while having fun with his students.

Going Beyond Project-based Learning (BPBL)

Presenter: Bill Overton, EdD.

Abstract

Over the course of his 40+ year elementary school career, Dr. Overton discovered through a series of epiphanies a new strategy for teaching his students. He called it Beyond Project-based Learning (BPBL) since it included a few of the key elements of PBLs while going beyond them. His 5-month BPBLs added other key elements such as creativity, integration of all curriculum areas studied in depth, critical thinking, improvisation, social-emotional skills, student-initiated experiments, and included smaller PBLs within each. They also included an abundance of quality formative assessment and fun for both students and teachers.

During this 90minute workshop, Bill will walk us through one such BPBL called, “Voyage to Planet X”. He will tell the story of how his students coalesced into “astronauts in training” while maintaining rigorous coursework. Their pretending became a conduit for focused learning in all subjects. He will also give you the tools for doing one of your own.

Planet X was a 5-month project that had every concept, every standard, and every activity related to one goal: visiting a hypothetical pristine planet, performing research of different kinds, and returning to Earth to report what they had learned. In preparation for such an endeavor students had to first learn how to write and speak persuasively in order to convince a hypothetical congressional panel to allot the billions of dollars that such a project would need. Students also would need to learn, among other concepts, the meaning of large numbers so each would know how scientists reached the finding of there being @150 billion stars in our galaxy. Along the way, they would need to understand the evolution of rocketry starting with the Chinese and going through World War II and the Cold War. And scientifically, each student would need to gain “expertise” in a branch of science so they could design and perform experiments on the planet. Student experts such as astro-mineralogists, astrophysicists, astrobiologists, and more grew out of the research each student did. The team of astronauts had to at times build models of the landing craft & living quarters, and at times change the classroom into a spacecraft. The arts were integrated into related activities as was cooperation and other social & emotional skills. One introductory cooperation lesson had teams of astronauts fight the force of gravity.

In addition to being rigorous, every day was full of different forms of play and improvisation. Students learned a tremendous amount while pretending to be astronauts. Of course, such a “flight” would demand that students knew themselves emotionally and were able to be important & contributing members of the crew. They also had to know how to solve problems.

These 5-month projects became part of the classroom culture and made every school year memorable for all of the students. Starting in 1985, Bill created about 15 different adventures ranging from BPBLs about the California gold rush, to oceanography-focused BPBLs, to East Coast colonial history BPBLs, and even a social justice one where students were assigned to Change the World. Doing two of these every school year reminded him that fun and play are not mutually exclusive to student learning.

Bill once wrote:

“These projects changed my career forever, renewing the energy, creativity, and fun factor I had when I was a new teacher. My kids lived for each one.”

Related to one such BPBL about improving the world, one former student said, “Change the World, changed my life”.

(572 words)

Effective Trauma-Informed Practices for Schools and Educators: A Literature Review

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Abstract

The impact that trauma has on today's learners has become a well-researched topic in the field of education. The purpose of this paper is to review the common themes found in the research revolving around trauma-informed practices. This literature review will identify and describe the various approaches and strategies that have been identified in the literature to most effectively support students who have suffered trauma in their lives.

Introduction

The impact that trauma has on today's learners and the trauma-informed practices that have been recommended to support the needs of those learners has become a well-researched topic in the field of education. According to Sacks and Murphey (2018), "ACEs [adverse childhood experiences] are potentially traumatic experiences and events, ranging from abuse and neglect to living with an adult with a mental illness" (p. 1). Forty-five percent of children in the United States have experienced at least one ACE (Sacks & Murphey, 2018). One in ten children are considered to be at especially high risk, experiencing three or more ACEs (Sacks & Murphey, 2018). It is also important to note that children may experience different numbers of ACEs due to their race and ethnicity (Sacks & Murphey, 2018). The prevalence of ACEs nationally is highest among black non-Hispanic children (61% having experienced at least one ACE) and lowest among Asian white non-Hispanic children (23% having experienced at least one ACE) (Sacks & Murphey, 2018). It has become evident that trauma has a great effect on students and impacts their behavior in school, as well as their ability to learn social-emotional skills and recognize their own resilience (Báez et al., 2019). The purpose of this paper is to review the common themes found in the research revolving around trauma-informed practices. This review will identify and describe the various approaches and strategies that have been identified in the literature to most effectively support students who have suffered trauma in their lives. The practices found in this review are ordered based on their prevalence found in the literature, beginning with those that have been mentioned most frequently and ending with those that have been mentioned less frequently but are still common themes.

Implement a Multi-Tiered Approach

Throughout the literature, one of the most common themes identified is the importance of using a multi-tiered, targeted approach when providing interventions for students who have experienced trauma. Reinbergs and Fefer (2018) outlined a three-tiered system beginning with school-wide supports for all students in tier one, more targeted interventions, such as skills groups, for at-risk students in tier two, and intensive, targeted trauma-focused cognitive behavioral therapy interventions for students identified in tier three. Chafouleas et al. (2016) supported Reinbergs and Fefer's (2018) recommendations by outlining the importance of a multi-tiered approach that provides universal practices for all students in tier one, targeted interventions focusing on strengthening self-regulation skills in tier two, and cognitive behavioral therapy as the most intensive intervention used in tier three. In order for a system to be multi-tiered, both broad-based and individualized supports should be in place (Frydman & Mayor, 2017). Additionally, a universal-screening system should be used to identify specific student needs and plan for more targeted interventions (Naik, 2019). Finally, it is also important to consider the adaptability of an intervention in order to meet the specific needs, creating a targeted approach (Powell et al., 2020).

Build Positive Relationships

The importance of educators working with students to build positive relationships is another common theme identified in the literature. Hollingsworth (2019) noted several important strategies when working with students who have experienced trauma, one of them being to foster connections with caring individuals. Keown et al. (2020) suggested the implementation of a mentoring program, stating that an adult mentor, such as a teacher or coach, can help support a student in overcoming trauma and building resiliency. Trauma-affected students need support to

develop connections with role models, mentors, and caregivers (Venet, 2019). It is evident in the literature that supporting students in creating positive relationships is an important piece of trauma-informed practice. Helping students to build positive relationships also becomes an important part of creating a safe space.

Create a Safe Environment

When working with trauma-affected students, another important implication for practice is to create a safe environment. Allen et al. (2020) outlines various principles in creating a trauma-sensitive school. Allen et al. (2020) states, “Clear, explicit communication and routines that provide predictability help ensure the classroom is a place where children feel physically and psychologically safe” (para. 23). While a safe environment is necessary for all children, it is incredibly important for trauma-affected children (Cavanaugh, 2016). A safe environment is often created by consistently implementing a set of expectations (Cavanaugh, 2016). Fidyk (2019) supports Cavanaugh’s recommendation when outlining the importance of predictability, consistency, and clarity of expectations. Hollingsworth (2019) also noted that one of the practices for working with trauma-affected students is creating a safe environment where they feel calm and secure. Stressed students need to feel safe and secure, in order to be in a calm state, before instruction can take place (Morton & Berardi, 2018).

Use a Trauma-Sensitive Lens

When working with the behavior or social-emotional issues of students who have experienced trauma, it is important to use a trauma-sensitive lens. Using a trauma sensitive lens means being aware of the trauma that students in your classroom may have faced, the implications of traumatic experiences for students, and how experiencing trauma may affect a student’s ability to be successful in the classroom. The importance of using a trauma-sensitive

lens when working with students who have experienced trauma was noted throughout the literature. Schools that do not adopt a trauma-sensitive lens will be more likely to mis-identify children exposed to trauma, therefore allowing them to fall through the cracks (Distel et al., 2019). Teachers who work with trauma-affected students should be prepared to treat those students as they would any struggling learner, making accommodations as necessary (Dotson Davis, 2019). Gherardi et al. (2020) describes a trauma-sensitive lens as one which seeks to better understand students and why they have challenges. Overstreet and Chafouleas (2016) discuss the danger of responding to challenging behaviors by asking, “What is wrong with this student?” They go on to state, “This type of lens on student behavior can result in punitive disciplinary responses, increasing the likelihood of re-traumatization resulting from seclusion or harsh zero-tolerance policies” (Overstreet & Chafouleas, 2016, p. 3). Thomas et al. (2019) state, “Using a trauma lens when handling difficulties with students means shifting the question from ‘what is wrong with you?’ to ‘what is happening with you?’” (p. 428). To further make a case for adopting a trauma-sensitive lens, the literature also shows evidence to support that trauma-sensitive practices reduce student suspensions and expulsions (Crosby et al., 2018).

Provide Support

Another common theme stated in the literature when implementing trauma-informed practices into a school is the need for support. Support systems should be put into place for teachers and staff who are working with trauma-affected students. Along with support for teachers and staff, the implementation of peer supports for trauma-affected students are also recommended.

Support for Teachers and Staff

The notion of secondary trauma also becomes an issue for educators who are aware of the challenges faced by their students but who feel unable to adequately respond to their mental health needs (Blitz et al., 2016). For educators working with trauma-affected students, it is important to not only be aware of the effects of trauma on learning, but to also be aware of the effects on themselves as professionals working with trauma-affected students (Brunzell et al., 2018). Loomis (2018) stated the importance of teachers and staff being trained to recognize and respond to childhood trauma, as well as the ability to partake in self-care to promote their own well-being. A trauma-informed school approach should include support for teachers and give specific attention to the well-being of the staff that is navigating the challenges faced by trauma-affected students (Thomas et al., 2019). In the multi-tiered approach to dealing with trauma-affected students proposed by Reinbergs and Fefer (2018), support for staff should be addressed in all tiers. As the literature concludes, without system-wide support for teachers and staff, it is unlikely that a trauma-informed approach will be successful in any school setting.

Encourage Peer Supports

Although building relationships with staff and other adult mentors is an important part of the trauma-informed model, it is not the only important relationship that educators and staff should be fostering. The literature also reviews the importance of encouraging peer supports for trauma-affected students. The benefits of peer-to-peer relationships that exist in the classroom can also extend beyond the classroom by helping to build a more positive school culture (Keown et al., 2020). Peer-based mentoring programs have been known to decrease the negative effect of trauma and promote resilience in students (Khalid, 2019).

Foster Emotional Regulation

By fostering emotional regulation skills in trauma-affected students, teachers can help ensure students have the tools needed to face future challenges. Day et al. (2017) notes that along with fostering positive student-adult relationships and peer relationships, teachers should also help students develop the ability to manage their emotions. Khalid (2019) states, “This review yielded indication that self-regulation is indeed a vital component of survival and thriving through chronic trauma” (p.103). Specific strategies that can be implemented to help promote self-regulation could include integrating movement, breaks, breathing techniques, and sharing circles (Fidyk, 2019). By promoting self-regulation skills, educators are also working to build resilience in their students.

Help to Build Resilience

The idea of working with students to help build resilience is another common theme found in the literature around trauma-informed practices. Gherardi et al. (2020) describe using student strengths and self-reflection as a way to encourage resiliency in students. Also noted in the research is that trauma education and strategies to build student resiliency are also important parts of a teacher preparation program (Honsinger & Hendricks Brown, 2019). It is also important to include trauma-informed practice as routine instruction in teacher preparation programs (Hollingsworth, 2019). Using strategies to encourage self-regulation and build resiliency will help trauma-affected students develop life-long tools to continue to heal and grow despite the challenges they may have.

Create Culturally Sensitive Classrooms

Blitz et al. (2016) recognizes a culturally responsive school as one that recognizes the cultural and racial identities of all students, understands the experiences of various cultural

groups in American history, and responds appropriately to meet the learning needs of all students. Similarly, a trauma responsive school is one that recognizes the prevalence of trauma in students, understands the impact of childhood trauma on students, and responds appropriately to implement supports that foster healing and growth (Blitz et al., 2016). Cavanaugh (2016) agrees with Blitz et al. when stating “Trauma-informed schools also need to be culturally sensitive and responsive to the needs of the diversity within its walls” (pp. 42-43). Several studies include recommendations for culturally-responsive classrooms in conjunction with trauma-informed practices (Thomas et al., 2019).

Incorporate a School-Wide Approach

The last theme that is most commonly identified in the research for adopting a trauma-informed approach in schools is the recommendation to implement a school-wide approach, including a school-wide prevention system. A school-wide approach to trauma-informed practice would likely include prevention, assessment, and intervention components, working to identify students with specific needs and incorporate targeted interventions (Frydman & Mayor, 2017). Trauma-informed schools should incorporate a positive, trauma-sensitive school climate, ongoing trauma-informed professional development, appropriate interventions for trauma-affected students, and a screening process to help ensure students who have the most needs receive mental health services (Loomis, 2018). By implementing a school-wide approach of trauma-informed practices, schools can be certain they have the necessary supports in place for students with various targeted needs.

Summary

When becoming an educator, it is impossible to know what the experiences will be of your future students. There are trauma-affected children in classrooms all around the world that

may require supports that educators are unaware of or are unsure how to give. The research has identified and outlined common practices that have proven to be effective when working with trauma-affected students. Teachers who are trauma-informed and trauma-sensitive will likely feel more capable of working with students who may have challenging behaviors or other challenges due to traumatic experiences in their lives. Given the prevalence of trauma, it is also important that trauma-informed practices become a vital component to teacher education programs. Preparing pre-service teachers and providing support for teachers who are working with students who may be trauma-affected are two important steps to developing a trauma-informed system in schools. Providing teacher support is also a necessary component to combat secondary trauma, which lurks in the classrooms of many practicing educators who feel unable to provide the support they know is needed for their students that are trauma-affected.

Identifying and implementing as many of the themes mentioned in this literature review as possible will provide you with a good foundation for working with trauma-affected students. Possible areas for future research may include more studies detailing the implementation of specific trauma-informed teaching methods to use in K-12 schools, research reviewing the implementation of trauma-informed teaching into pre-service teacher programs, and research reviewing educator challenges and the secondary effects of trauma on educators. Given the popularity of the research topic, it is likely that new and emerging literature will continue to surface providing even more insight into best practices for creating a trauma-informed school environment.

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1. Title of the submission: Exploring Canadian Military Veterans' Experiences of Institutional Betrayal: A Narrative Inquiry (Study-In-Progress)

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Exploring Canadian Military Veterans' Experiences of Institutional Betrayal: A Narrative Inquiry
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Introduction. In 1917, Prime Minister Sir Robert Borden made a commitment on behalf of the Canadian populace that military personnel who became injured while serving their country would be supported and rehabilitated (Minnes, 2016). In subsequent years, Canadian veterans' personal accounts suggest that this social covenant has not been universally upheld (Minnes, 2016). For instance, in 2005, Sean Bruyee, a 14-year veteran of the Canadian Air Force, disclosed that he had developed post-traumatic stress disorder (PTSD) following a deployment (Freyd & Birrell, 2013). Although Sean served honourably, he was promptly released from service without aid or explanation. In appealing this decision, Sean endured retaliation, alienation, privacy breaches, and threats from military officials (Freyd & Birrell, 2013). This account is one example among many that illustrates the failure of a trusted and powerful institution to support its members, a phenomenon known as *institutional betrayal* (IB; Smith & Freyd, 2014).

Background. Over the last decade, the concept of IB has emerged as a way of describing institutional failures to respond appropriately to individuals who have experienced trauma within the institutional context (Smith & Freyd, 2014). With respect to traumatic events encountered during military operations, IB may exacerbate traumatized members' distress and become an additional traumatic experience in its own right (Smith & Freyd, 2017). Indeed, IB has been associated with more severe, complex forms of PTSD and an increased risk of suicide among veterans (Monteith et al., 2016). However, there is a paucity of published research about

Canadian veterans' experiences of military-related IB (Beks & Cairns, 2020). Given that IB exacerbates distress among traumatized military members (Monteith et al., 2016), it is critical that we honour Canadian veterans' lived experience of military-related IB. Veterans' perspectives may offer insights into the significance of IB and highlight potential avenues for prevention, support, and reparation. Using narrative inquiry (NI) methodology (Clandinin, 2013), my doctoral research will explore the ways in which Canadian veterans experience IB within the context of service-related trauma.

Objectives and research questions. Previous research showed that partners of traumatized veterans experienced incidences of betrayal by the military establishment (e.g., withholding information, dismissiveness, and denial of entitled benefits/services) that not only hindered access to psychological care but also exacerbated family distress (Beks, 2017; Beks & Cairns, 2018). In addition, research suggests that military veterans make frequent disclosures of institutional betrayal and its harmful effects to mental health professionals, but there is an absence of guidelines on how to respond to these issues in clinical practice (Currier, McCormick, & Drescher, 2015). We will broaden this line of research to explore Canadian veterans' experiences of IB, including how they make sense of and respond to these experiences within the broader context of service-related trauma. Hence, our primary research questions are: What are veterans' experiences of IB? How do veterans compose their experiences alongside the broader social, historical, political, and cultural context in which they are embedded? How might counselors respond and support veterans in the aftermath of such betrayal?

Methodology. Using NI methodology, we will explore Canadian veterans' experiences of IB through the collection, analysis, and interpretation of stories. The proposed methodology is guided by a relational ontology and narrative constructionist epistemology, which conceives experience as the transactional relationship between the individual and the environment (Clandinin, 2013). Stories are culturally and socially situated, and the hearing of stories is essential to their production (Clandinin, 2013). Since the meanings individuals develop are subjective, varied, and formed through interactions in context, the purpose of research is to make sense of the meanings that others have about their experience by attending to the specific contexts in which they live (Clandinin, 2013). We will recruit six Canadian veterans who have experienced service-related trauma to share their experiences of IB. While oral interviews will be the primary method of data collection, alternate artifacts of participants' experiences (e.g., texts and audiovisual media) may also be integrated into the dataset (Clandinin, 2013). We will have four successive interviews with each participant to promote in-depth exploration (Clandinin, 2013). Following data collection, we will transcribe interviews and analyze texts as outlined by Clandinin (2013) and Polkinghorne (1995). Using Polkinghorne's (1995) narrative analysis method, we will code and configure the textual data into a chronological account of IB. We will then move recursively between writing the narrative and confirming its accuracy, chronology, and meaning with participants (Clandinin, 2013). In the final stage, we will identify overlapping themes that emerge across participant narratives (Clandinin, 2013). To enhance trustworthiness and rigour, 12 quality checks will be implemented to establish credibility, confirmability, dependability, and transferability (Clandinin, 2013).

Implications. The findings from this study may offer deeper insights into veterans' experiences of IB in pre- and post-trauma contexts and may help to identify avenues for prevention, support,

and reparation. The proposed study may also inform counseling practice and pedagogy by attending to the important cultural and sociopolitical context surrounding IB, as well as the unique role of counselors in processing veterans' experiences of IB. Moreover, the findings from this study may enact new possibilities for advocacy in veteran, academic, and clinical communities.

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Art-based Educational Research in Florida Colleges for Profit

1. Title of Submission: UNDERGRADUATE ESOL IN A THINKING CRITICALLY CLASS IN FLORIDA COLLEGES FOR PROFIT: ART-BASED RESEARCH

2. Topic Area: Curriculum, Research and Development and/or ESL/TESL

3. Presentation Format: Round Table

4. Description: This paper explores how international undergraduate ESOL students reflected in a critical thinking class using visual art-based research (ABR) in Florida colleges for profit. The purpose of this study is to unfold the concepts of 15 students when evoking different paradigms about gun control revealed by questions through illustrated pictures. The exploratory method deep suggests how interventions in center-service curricula must include ABR so students understand gun control in a cosmopolitan society.

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Undergraduate ESOL in Critical Thinking classes in Florida colleges for profit:

Art-based Research

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Abstract

This paper explores how international non-native English-speaking (ESL) students reflect within a contemporary critical thinking class using visual-art methods in Florida colleges for profit. When teaching English as a second language (TESL), the ESL students and international college teachers have a lack of experience with gun control in our democratic culture. Taking action through the window of 'art' learnification is essential for undergraduate business students in Florida colleges for-profit to play a significant role in data research shaping their applied 'experiences' from theory and reflection. International students anticipate and reflect advanced knowledge of social change issues in the Thinking Critical classroom with art-based action in the classroom and traditional qualitative approaches. The purpose of the Wynwood art-field trip was for ESL to develop dialogue, learn new skills, and develop an ability to validate their own beliefs that students may better understand democratic perceptions and beliefs about gun control in the USA. These international undergraduate students in colleges for profit in Florida classrooms represent a portion of the vulnerable group whose commitment is to build their identity' arm to arm' with native English-speaking students by collaborating and participating with an art-based approach when studying their own perceptions and beliefs about gun control in critical thinking classes. These art-based action methods engage ESOL students' comprehension in their process to better understand the center-service curriculum with extracurricular field trips that describe the Wynwood Wall pictures from the art-curator perspective in collaboration with college student's discussions. This purpose of visual fieldwork art described experiences in narrative and provides information with epistemological and ontological events. The participants are 15 international non-native English classroom students with a business major who became motivated to think critically and incorporate self-creativity and self-reflection when learning real-world problems about gun control using the art-based approach. The student's reflection was able to clarify and

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unfold their own ideas so that their collaborative workshop findings enabled them to create poster collages of gun control. Undergraduate college students, in their communal findings, concluded that gun control is not simple enough. These students decided that many worldwide protests concerning gun control were meaningfully ineffective.

Keywords: Art-based Research, Corroboration, Thinking Critically, Reflexivity.

Introduction

English as a second language (ESOL) students have difficulties expressing their beliefs and perceptions about gun control in cosmopolitan societies. Chaffee (2019) describes international students' understanding of western and law-abiding cultures containing different beliefs and perceptions. The main themes in *Thinking Critically* expanded the paradigm of cultural capitals for learning and were explored through examples of depression, killings, bullying, sex abuse, and extreme violence, all of which degrades the beliefs of a free society (Chaffee, 2019). In other words, critical thinking is deeply embedded in pedagogical and philosophical paradigms. Previous qualitative, quantitative, and mixed methods researchers examined attempts to understand the international undergraduate ESL student, who attributed through the democratic politics and assessments in classroom achievements in the western civilization (Leavy, 2015). On this point, Leavy (2015) defines *collage technics* as a widespread experience in the classroom, an approach that transforms new ideas in educational art-based research (ARB) studies. Leavy (2018) describes '*visual portraits*' as examined voices in a dominant culture for social justice advocacy. Similarly, cultivation with ESL gives students the power to participate and adjust their epistemological judgmental knowledge (Chaffee, 2019). The aim of the critical thinking class for ESL is to unfold the comprehension of contextualized ideas and create individual cross-cultural identities as self-expression of emotion based on observed perceptions. In a self-study via the perspective of one's own shoes, Drs. Jill & Winkle (2013) explained and emphasized the critical elements in visual arts through beliefs and perceptions. Along with reflecting and developing self-study, it provides a pathway to practice and explore the phenomena of visual narrative. Social justice exploratory professors in the 90's examined Art-Based Dialogic Narrative Analysis (ABDNA) and emphasized visual strategies by carefully considering images that examine

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questions such as 'what do you see, 'what is going on in the pictures,' and 'what more can you find,' all of which leads to participation and discussion (Jill & Winkle, 2013).

Literature Review

Many visual art-based research (ABR) expressions were not explored enough through ethnographies, aesthetic interventions, photography, and collage (Leavy, 2018). The ESL students have monovision at the beginning of their critical perspectives regarding their native culture about gun control. Their lack of experience in critical and anti-colonial literature influences the students' discomfort when becoming collaborative and participatory while engaging in this class of social and human science. In *Finding My Way to Becoming a Researching Practitioner*, empathy is described as an inducing body that advocates art action. Additionally, developing an understanding of narratives and participation in the practice of teaching and learning includes collaborative writing, collaborative research, collaborative curriculum, and collaborative standards that move from generalization to specific self-study practices that can create perceptions and beliefs of the context. Therefore, Rosenberg (2009) implied that scientific action is about choices, and choices require roots experiences like a 'Venn Diagram' (Pithouse, Michael, & Moletsane, 2009). Art and science have the common challenge for critical social theory and students must have experiences in the school and be an empowered individual who becomes socially proactive (Freire, 1969). In *Pedagogy of Oppressed*, the coined term 'critical' is connected to attempts that confront injustice in a practical and mindful society. However, Stuhr (1993), in support of the Dewey stories linked to Freire's 'banking' in *Experiences and Nature*, discussed the lack of practice and experiences that need experiential challenges when applying art methods. According to Dewey, students are not 'static' and are embedded in investigative learning that is creative and integrates experiences, perceptions, cognition, and behaviors. Having that in mind, Horwitz uncovered the absence of the teacher's experience as limited teaching in advance placement classes, that collaboration between theory and practice need art action (Pithouse, Michael, & Moletsane, 2009). In *Unflattening*, inspirations from using visual arts become more complicated when developing the opinion that we live in a flattened dimension in our creative and free choice philosophy of life (Sousanis, 2015). This Harvard University fellow describes an awakening and banking model that defines

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students and their perception of conclusions in cross-cultural differences withdrawing 'brain flash' ideas.

Methods

This study uses an art-based participatory research (ABPR) model as a creative process for four stages that examine the critical social theory of 15 international undergraduate students pursuing a critically thinking class in Florida college for profit. Leavy (2015) explored nested art methods that cultivate a sense of design for understanding beliefs, conceptualizing knowledge, following art-based lived experiences by integrating participants who gather data collected from their visual practices, photovoice, memories, and notes. The teachers developed a collage technique for their students to reveal their experiences and reflections from the vignettes (Pithouse, Mitchell, & Moletsane, 2009). On this point, Leavy (2015) defines 'collage' art technics as a widespread experience in the classroom, an approach that transforms new ideas in educational research studies (Table 1).

Table 1

Art-Based Research Form		
Forms	Categories	Subcategories-examples
Visual art	Two-dimensional Three-dimensional Time-based	Collage; Photovoice; Drawing; Painting; Animation, Digital Storytelling; Photocomics.
Performing art		Theater; Dance.
Sound art		Radio; Soundscape.
New media art		Virtual world.
Multiple forms art		

Note. Visual art can further be divided into two-dimensional, three-dimensional, and time-based visual art. Each category offers a variety of options so researchers can draw from when applying artistic forms in their visual research project.

In a two-dimensional visual art approach along with self-reflective practices of college creative art (Leavy, 2015), the researcher collects the data information, analyzes them step by step, and compares the results to see if the findings are confirmed or disconfirmed.

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In a first 'awareness' approach or post-colonial and post-war theoretical framework, students in the classroom transform their perceptions, beliefs, and basic ideas based on epistemologically social justice in school shootings from 1999 to 2018. When viewing the alternative art on the 'Wynwood Walls' in Miami, a multi-cultural characteristic of ESL students prompted them to ask: "Why so much violence and how much is necessary for the rest of the world to see? Is this what we believe, and does perception work? How am I self-reflective, and how does this affect others? How ESL students and does this influence social action for gun control? What are the origins of violence, and how did the need for guns become so prevalent? What has provoked the massive school shootings in our cosmopolitan society (Chaffee, 2019)?"

Students were engaged with an art expert during the extracurricular field trip to the Wynwood art community in the second 'participatory' approach. Within this path of a collaborative approach for ESL students is their lived experiences of American artists and photographers who draw pictures of gun control on the Wynwood Walls. The students compiled the data from realistic American artistic concepts on Wynwood Walls. This collaboration has had a tridimensional art approach among students, teachers, and art-based experts where 15 students compiled data, text, memos and notes, quotes, as evidence from visual graphs. Experimental graphic curators in Wynwood are contributing to outdoor graphics on the Wynwood Walls. While painting a Wynwood Wall, the art curator shared his stories with our ESL students and talked with them about gun control and the image of school shooting personifications.

The following 'ontological' approach was self-empowered and encouraged students to write poems and stories about this field trip. Visual art is a method of learning with music, poetry, stories, fiction, and nonfiction (Leavy, 2015) that expresses interest, evokes emotions, and cultivates insight into the international non-native English-speaking undergraduate students studying in South Florida. The art-based approach is to understand teacher education collaboratively through participation while looking into the mirror of self-reflection and discovering individual human biases (Michell, Pithouse, Moletsane, 2009).

'Art-based experimental' ESL students applied their own gun control understandings gained from their personal life epistemological and ontological experiences by creating poster-image of collage techniques. Leavy (2015) uses collage as a methods approach for therapy in aesthetic interventions from visual art. Similarly, in *Reframing Autobiography in Teacher Education from a First Nation Perspective*, Sara and Valerie transformed their autobiographical

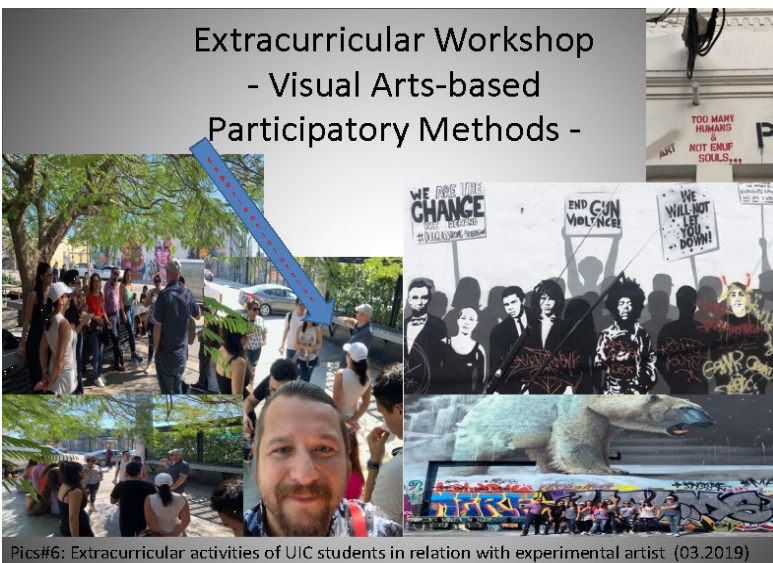
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experiences. Valerie, in reframing her pictographic teaching experience, learned collaboration and participation in Sara's workshop. Consequently, her reframing self-portrait started looking similar to Sara's portrait (Pithouse, Mitchell, & Moletsane, 2009). Leavy (2018) describes visual portraits as examined voices in a dominant culture for social justice advocacy. The ABR results were collected from data collection, coded, and put into main collective themes.

Findings

Undergraduate students created and presented 15 collages after studying the events of the massive shooting, the consequences of school shootings, and the voices heard from the artists represented on the 'Wynwood Walls' in Miami. Significant results included field trips for our ESL students to engage and participate in ABR and to have opportunities to reveal their perceptions and beliefs with gun control and reflect their findings of the visual collage practice in critical thinking class. ESL students a) students upgraded their knowledge of perception and beliefs; b) shared their ABR stories; c) reflected on their findings with visual collages; and d) developed a deep understanding of their self-beliefs in gun control in a cosmopolitan society.

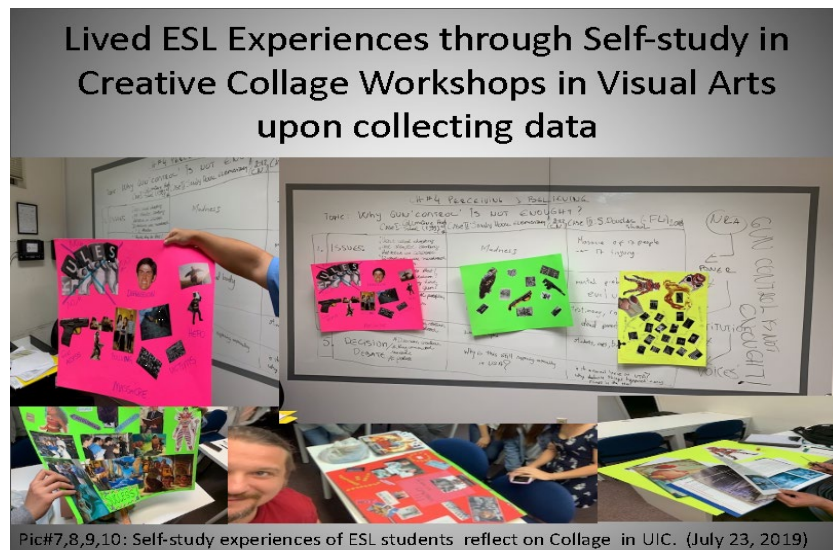
Figure 1



Note. Students engaged with a professional artistic curator 'Vanoti' in extracurricular arts-based participatory activities in Wynwood, Miami.

ESL students evaluated their collages by writing notes and developing a one-page reflective paper that advanced their firsthand learning of beliefs and perceptions of gun control in U.S. society.

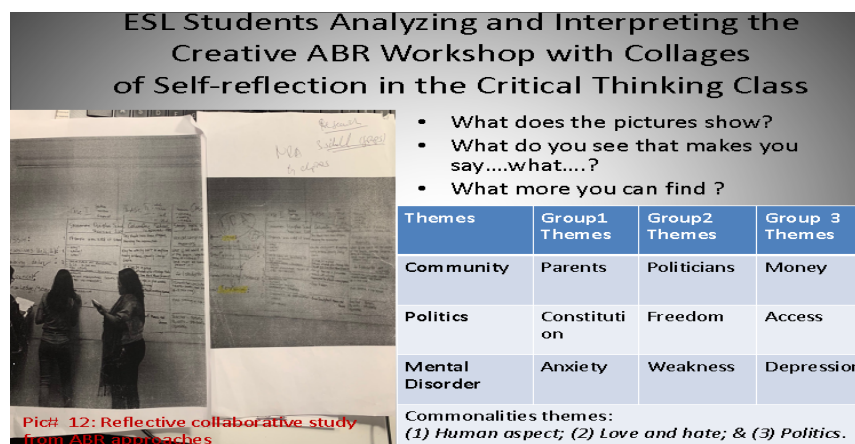
Figure 2



Note. Students share ABR stories in the Critically Thinking classroom using creative collage technique in visual art upon collecting data from stages one and two.

The findings were based on the merging themes that understand beliefs and perceptions using art-based approaches and collage methods. The students identified themes such as constitutions, amendments, power, policy, community, empathy, anger, freedom, and choices. The collage themes were separately discussed in the class of critical thinking to understand and become familiar with gun control in the USA. At last, but not last, undergraduate students unfolded their experiences to identify their sense of environment to reframe art research in collaboration and coordination of ABR instructors. In their findings, students used experienced art technics of self-reflection to support critical social theories.

Figure 3



Note. ESL students in groups interpreted the creative ABR workshop with collages on self-reflection and shared common themes based on research questions.

Students reframed their beliefs and perceptions of a democratic society within multiple paradigms of gun control by comparing their fundamental knowledge to their native cultures. Pithouse Michael, & Moletsane (2009) stated that the limitation of the ABR is that not all ESL students will

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learn self-study and must be classroom instructed with extracurricular activities in the 'art' community. The challenge is that art-based research (ABR) college teachers must reach the appropriate level of teaching and learning to understand ABR and the differences for the advocacy of marginalized student groups.

Discussion

The service-center curriculum in colleges for profit in Florida represents many pedagogical circumstances of values presented by individuals who negatively impact society. In the 21st century, we need alternative voices for ESL marginalized groups to find, express, and adjust revolt because old methods are ineffective due to modern technology (Sukarieh & Tannock, 2015). According to Sukarieh and Tannock, critical thinking is derived from strong beliefs that need social and critical actions to transform the injustices. Humanity needs democracy, accountability, liberal policies, and encouragement of our young electoral population (Sukarieh, & Tannock, 2015).

Today, after COVID, policies need to be unpacked so that educational researchers may conduct the research with the complexity of ABR data to find out 'what works.' This knowledge is based on social justice, inclusive communities, collaborative service, and knowledge and truth (Barry's Core Commitments, 2008) for continuing service in a democratic society. The ABR is a process of learnification, understanding reframing, and unfolding ESL students to resolve issues not only for themselves but also in 'other shoes.' Drs. Jill and Winkle's (2013) explanations were given in the article, *Journey Toward Reflexivity in Graduate Teacher and Researcher Education Using Arts-Based Self-Study*, and stated, 'is it work to have other shoes. International student groups struggle to unfold their understanding of context, empower their voices, learn how to engage in a different culture, share their values, and improve ESL language proficiency to understand the democratic curriculum, research, and developmental instructional goals. The concept for the international undergraduate student is to express, liberate their thoughts, and become accountable in a cosmopolitan society. Students, in their common findings, concluded that gun control is not enough.

Art-based Educational Research in Florida Colleges for Profit

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Art Empowerment: Teenagers Revisit Diversity and Social Justice

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In this presentation, I share ways that I have used the artworks of contemporary artists to encourage middle school students to reflect on the concepts of diversity and social justice. In a small community art program, I organized a project called “Reflection and Change,” which examined how visual art could empower teenagers by weaving together art appreciation, storytelling, and art making. Seven Korean-American middle school students—six females and one male—participated in this project. Exploring themes of identity, self-discovery, the power of personal voices, and visual art as a source for social change, the students viewed the works of contemporary artists; participated in honest discussions, relating the artwork to their own lives; wrote reflective essays about personal history; and created artworks.

The presentation describes my use of an artwork called “Kikito (Tecate, Mexico-USA, 2017),” a work in the Giant series by JR, a French street artist. When I shared images of this artwork with students, the participating teenagers discussed this public art piece verbally as well as through texting via social media. They then created artworks based on their reflections. In this process, I used storytelling as a main tool to engage the students in thinking critically and exploring multiple interpretations and personalized perceptions based on what they observed (Heise, 2010). Art educators believe that the visual arts can become a potent vehicle for social change, empowering people, and questioning social systems (Bae, 2020; Fendler et al., 2020; Kraehe & Crabbe, 2020; Kraehe & Herman, 2020; Rollings, 2020).

The participating teenagers explored stories related to JR's Giant Baby project and enthusiastically responded to the messages they found through their drawings. The storytelling embedded in JR's artwork and more explicitly provided in the artist's interview video appeared to inspire the students to examine the relationship between the U.S. and Mexico from their own perspectives. By employing the flipped classroom and offering discussion questions, I encouraged them to critically think about this social issue and to respond to it conceptually and creatively. Although the quality of student outcomes varied in both the text-based discussions and drawing activity, the artwork and the artist's stories engaged the students in an examination of the U.S./Mexico relationship and sparked their interest in the role of the visual arts as a source of social justice and systematical change.

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Title of Presentation: A study on effective teaching practices through the use of E-books with ELL students

Topic Area of the Submission: ELL Education

Presentation Format Paper Session

Presentation Description: Presenters will describe the basis of research, summarize current strategies being used, and how we can better help our ELL students. The presentation includes an analysis of data results from Title 1, special education, administrators and general education teachers. Small groups will discuss and share current practices in education with E-books and ELL students. Participants will be able to apply this to programs by implementing E-books and other strategies that E-books can be used with.

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Abstract

English Language learners (ELL) are becoming more relevant in classrooms today (Jozwik, 2019). Teaching strategies to help ELL students improve their comprehension is becoming critical in the classroom (Pang, 2013) to advance ELL knowledge in the English language. In the 21st century, technology is heavily and constantly growing, making the push to advance students' skills and strategies using E-books (Yoon, 2013). As educators it is important to develop skills for ELL students. Despite current efforts to close the gap, ELL students are still falling behind state-wide benchmarks compared to non-English learners (NAEP, 2019). For different perspectives, the triangulation method was used for data analysis through a survey. This study was conducted to understand how educators can provide necessary comprehension strategies for ELL students. Teachers provided feedback on training received for ELL students. The survey showed results that all schools in the survey had one-to-one devices allowing teachers to bring E-

books into their classroom but lack training. Professional development is necessary for teacher preparation in the use of E-books and comprehension strategies for ELL students.

Restore U: A Program Intervention for Healthcare Workers During Covid 19: Participant Benefits and Learning

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Restore U: A Program Intervention for Healthcare Workers During Covid 19: Participant Benefits and Learning

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Abstract: The Restore U 21-Day Challenge is offered as an annual well-being tune-up for staff and faculty who experience stress, secondary trauma, and compassion fatigue while working at a regional health care facility. This study explored the experiences of program participants. Researchers wanted to know how the curriculum personally affected participants, how the workshop changed interactions between healthcare workers and patients, suggestions for the next Restore U 21-Day Challenge, and the nature of learning that occurred. Participants completed one or more of five activities shown to reduce stress, including naming three good things that happened that day, journaling, exercising for 10 minutes, meditating for 2 minutes, and doing a conscious act of kindness. Two hundred fifty-four employees completed both the pre-and post-program surveys. Participants reported being more positive, focused, and centered after completing the program. In addition, they were more empathetic, compassionate, and patient with clients. They also taught their patients some of the activities learned in the Restore U 21-Day Challenge. Suggestions for future Restore U Challenge programs included more opportunities for interaction between participants, increased advertising, and additional activities such as guided meditations and TED talks. Respondents engaged in experiential learning, and their perspectives changed during the program. They reported being more grateful, positive, energized, focused, and patient. Our findings confirm the value of these activities to increased resilience. Program leaders may consider infusing technology in the next Restore U 21-Day Challenge and include more social events. Future studies may want to have more demographic information to understand better how these characteristics may affect participants' experiences in the program.

Healthcare workers have reported more mental and physical stress during the pandemic. A literature review of healthcare workers' mental health during COVID-19 showed that frontline workers reported increased anxiety, depression, and insomnia during the pandemic. Nurses reported more stress than doctors (Lai et al., 2020, as cited in Spoorthy et al., 2021). Nurses reported more anxiety than other workers (Cai et al., 2020, as noted in Spoorthy et al., 2021). Nurses and advanced practice providers reported more symptoms of stress than attending physicians (Schechter et al., 2020, p. 1). Healthcare workers' stress negatively affects patient care because burnout can lead to a lack of empathy, a lack of positive attitudes, and deficient listening skills (Hall et al., 2020). Nurses' emotional exhaustion has been negatively correlated with job

satisfaction (Munnangi, et al., 2018). Social support and a positive attitude helped ameliorate stress (Cai et al., 2020, as cited in Spoorthy et al., 2021). Health care workers also expressed interest in exercise and talk therapy to cope with the stress that occurred due to COVID-19 (Schechter et al., 2020). Subjects also indicated an interest in "yoga, faith-based/spirituality, meditation, and a virtual support group" (Schechter et al., 2020, p. 1).

When a disaster such as COVID-19 strikes, individuals and organizations go through phases. Typically, there is a heroic response to the threat and a honeymoon period with community support for healthcare workers and others. Then, disillusionment and coming to terms with the reality of the situation is followed by a time of new beginning (reconstruction phase) which can include some grief (SAMSHA, 2020 as cited in Washington State Department of Health, 2021).

During the disillusionment phase, individuals experience behavioral symptoms such as depression, exhaustion, workplace burnout, cognitive-emotional disruptions, isolation, anxiety, trauma symptoms, and risks of substance abuse and suicidality (Washington State Department of Health, 2021). Activities and practices recommended in this phase of a disaster that can increase personal and community resilience include increasing social cohesion (Li et al., 2014; Sharma et al., 2020), and having hope (Sünbül et al., 2018).

In usual times, the Restore U 21-Day Challenge is offered as an annual well-being tune-up to help staff and faculty who experience stress, secondary trauma, compassion fatigue, and moral distress from working at a regional academic medical center. In late 2020 and early 2021, the utility of this program became more urgent as our state's Behavioral Health Strike Team shared that "active resilience development remains an essential intervention for all groups in our state." (Washington State Department of Health, 2020, p.2). Ongoing warnings of the "disproportionately more significant behavioral health impacts" on healthcare workers and the possibility that some groups and individuals might experience a 'disaster cascade' --the effects of slower recovery due to multiple disasters or disaster effects over a short time frame (Washington State Department of Health, 2021, p.3) called for a coordinated and active program that could create positive change and help individuals mitigate the ongoing adverse effects of the multiple pandemics.

Purpose of study: This study aims to explore the experiences of program participants in a program offered to health professionals that incorporated mindfulness exercises described above at a university medical center. Specifically, we ask:

- (1) How did the Restore U 21-Day Challenge curriculum personally affect participants?
- (2) How did the workshop change interactions with patients/patient care?
- (3) What are suggestions for the next 21-day challenge?
- (4) What was the nature of learning that occurred?

Conceptual Framework

The Restore U Challenge includes activities that have increased resiliency and reduced burnout. These activities include meditation, writing down Three Good Things, exercise, journaling, and doing a random act of kindness. The benefits of *meditation* for nurses have decreased burnout, anxiety, depression, and increased well-being and empathy (van der Riet et al., 2018). Meditation has been associated with increased attention (Basso et al., 2019). The

gratitude practice of *Three Good Things* grew "job performance and self-efficacy" (Guo et al., 2020, p. 480) in addition to increasing resilience and reducing stress (Cunha et al., 2019; Seligman et al., 2005). The Three Good Things exercise also decreased symptoms of burnout among nurses who recorded three good things at least twice a week (Luo et al., 2019). *Exercise* has been shown to increase well-being and reduce stress with cardiovascular exercise, decreasing "emotional exhaustion" (Bretland et al., 2015, para. 4). *Journaling* has been shown to increase compassion in nurses, reduce burnout, and decrease symptoms of trauma and compassion fatigue (Dimitroff et al., 2017). Finally, random *acts of kindness* facilitate compassionate actions and social connections, increasing nurses' resilience (Kinman et al., 2020; Miles et al., 2020, Wei et al., 2019).

Experiential learning is at the core of most learning experiences. In the constructivist paradigm, individuals have a concrete experience. They reflect on the experience, analyze the experience, and put the new ideas into practice (Kolb, 2014). Kolb defined learning as "*the process whereby knowledge is created through the transformation of experience*" (p. 201).

As a result of experiences, individuals can have small or substantial changes in seeing and interacting with the world. Mezirow's (2000) theory of transformative learning has four main components: "experience, critical reflection, reflective discourse, and action" (Merriam & Baumgartner, 2020, p. 170). Mezirow defines learning as "the process of using a prior interpretation to construe a new or a revised interpretation of the meaning of one's experience in order to guide future action" (2000, p. 5). We can have changes in meaning schemes which are "sets of immediate, specific beliefs, feelings, attitudes and value judgments—that tacitly direct and shape a specific interpretation and determine who we judge, typify objects, and attribute causality" (Mezirow, 2012, p. 84). We may also have changes in perspective, which is a more significant change in worldview or frame of reference. The difference between the two is that a shift in meaning perspective or a perspective transformation changes their larger worldview. For example, a person may initially believe that they are superior to others because of a particular characteristic (race, class, gender, ability status, etc.). However, an experience or series of experiences may eventually lead them to believe that all people are of equal value. More minor changes in attitudes may also occur as a result of experiences. Individuals may learn to become more patient, for example.

Method

This was a quality improvement (QI) study commonly used in healthcare education for program evaluation. Thus, we did not apply for the Institutional Review Board approval. The 21-Day Restore U Challenge occurred from February 1-21, 2021, at a regional academic medical center in the northwest United States. We invited two hospitals' staff and faculty to participate in a 21-Day challenge. Because of the breadth of this hospital system, outer clinics and satellite staff were also included in the invitation. Participants were challenged to complete one or more of the following five activities for 21 consecutive days. In addition, they could explore as many of the activities as they wanted to during the challenge.

The five activities included 1) Three Good Things: Naming three good things that happened that day and their part in the activity. 2) Journaling: Writing down the most positive experience of the day in as much detail as possible. 3) Exercising for 10 minutes, 4) Meditating for 2 minutes, or 5) Doing a conscious act of kindness such as paying for someone's coffee order

or writing a kind note to someone. Each of the activities is evidence-based or informed to improve an aspect of well-being or resilience.

Participants received one point for each day that a participant completed one or more activities. At the end of the 21 days, participants reported the total number of days they completed one of the five practices. Those that read one of the recommended books received five extra points.

Data Collection

Within two weeks before the Restore U Challenge, we sent four emails to staff and faculty inviting them to participate in the Restore U 21-Day Challenge. The email included specific challenge information and a link to the online registration and pre-challenge survey form. Registration closed on the first day of the challenge. Participants' email addresses were used for follow-up communications throughout the challenge (6 encouraging group emails), two coffee card lotteries after weeks 1 and 2 (40 people total), and five post-challenge requests to complete the follow-up survey, which also included directions on where to pick up a complimentary gift bag. For research purposes, survey respondents were assigned a unique identification number, and all data were de-identified before analysis.

During the three weeks following the challenge, the 581 initial registrants received several invitations and reminders. Post-surveys included questions regarding workplace location, shift, years of experience and years participating in this annual challenge, how many days they completed the challenge, and which exercises they did most often (up to 3).

Five hundred and eighty-one (581) healthcare workers (HWs) registered for the 21-Day Restore U Challenge. We used the responses of the **two hundred fifty-four (254) employees who completed the pre-and post-program surveys** as our convenience sample. All responses were self-reported using the online Microsoft Forms format.

Our post-survey sample included nurses (40%), nursing and medical assistants (4%), doctors and advance practice professionals (6%), and other healthcare workers (48%). Seventy-one percent worked directly with patients and families. In addition, 82% of the sample worked the day shift. Twenty-six percent of all who submitted a post-survey had been in their profession only 0-2 years. Sixteen percent of the participants had been in 3-5 years, and 41% of the registrants had been in their profession between 6-10 years. Forty-five percent were veterans of the profession at ten years or more.

Data Analysis

We used a basic qualitative method to analyze the data. First, we performed initial data coding to see the main phrases that answered each research question. Next, we looked at the initial codes and collapsed codes to create the common themes that answered each research question (Merriam & Tisdell, 2016). Next, we did a secondary analysis of the data using the conceptual lenses of experiential learning (Kolb, 2014) and transformative learning (Mezirow, 2000) to ascertain the nature of learning.

Findings

Of our 254 respondents, 73% completed at least 17 days of the challenge, 85% completed at least 14 days of the challenge, and over half (53%) completed all 21 days of the challenge. Seventy-one percent were participating for the first time in this event. The top activities that were utilized landed in three distinct tiers of popularity (most, moderate and least). The most popular activities were Three Good Things (77%) and exercise (74%). Meditation (56%) and conscious acts of kindness (50%) were moderately popular. Journaling (20%) was the least popular activity.

For our qualitative analysis, participants provided short responses to questions regarding 1) how the 21-day challenge affected them personally, 2) how the program affected participants' patient care, and 3) what suggestions they had for future 21-day challenge programs.

Effect of Workshop on Participants

Participants had an increase in positive feelings. They were more grateful, positive, calmer, energized, focused, and centered. Respondents mentioned feeling **more grateful**, perhaps because one of the exercises explicitly required writing down three good things. Responses that exemplified gratitude included, "I am more grateful for the people in my life after practicing the gratitude exercise regularly." "It was nice to take a moment and remember the little good things about your day." "It helped me to continue to focus on the good things happening in my world." "I felt like if you slow down and appreciate what is right in front of you, you will genuinely be happier. Don't sweat the small stuff." "I always try to live in gratitude, and this helped focus on that goal."

Quite a few individuals said they felt **more positive** after going through the program. Comments included, "I noticed that I had a more positive outlook on things and as a result more positive things were happening." Another person stated, "I was reminded to focus on positive things instead of negative." Other comments included, "I always love this challenge because it reboots my "3 good things" practice, which positively impacts my mindset." "I was able to connect with people and attract more positive encounters." "I noticed that my general energy levels and my attitude were positive after exercise." "I found myself thinking more positively and looking for things to be thankful for throughout the day, even on the worst of days. Yay!"

Respondents indicated they were **calmer** after completing the 21-day challenge. Comments included, "I now feel more relaxed, less stressed, and appreciative of the small things. I am grateful for this exercise." "I noticed I was less wound up, and this calm helped reduce stress." "I have gained a lot of 'calmness' and clarity of thought as a result of this exercise." "I felt happier and less tense." "I think I noticed more calmness/peace all together." "Helped me cope with the current difficulties I am experiencing related to an on-the-job injury. The exercise gave me endorphins, and meditation helped me find calm inside myself." "This has really brought me a lot of peace and comfort these past three weeks." Writing down three good things a day brought one participant "peace and comfort." "I felt less stressed or anxious after exercising." Another person commented,

When a somewhat traumatic situation occurred during my shift, after things on the unit stabilized, I took a 15-minute break to meditate and deep breathe. I felt my anxiety

significantly decrease, and when I went back to work, I was able to complete everything effectively with minimal stress.

Respondents felt more **energized, focused, and centered** after the three-week challenge. They noticed they had more energy. They felt "energized to do more." One person said, "I felt energized by taking a few minutes to myself," and, "I noticed I had more energy through the week, and I fell asleep faster." "I felt revived after performing the meditation exercises, which was very refreshing." A respondent noted, "I felt more energetic and centered. It gave me a pause in the middle of the day to reflect a bit and slow down since I'm always in a rush." A respondent stated, "This exercise helped me start the day feeling centered. . . This exercise also showed me that there are many things I already do that are good for me and help keep me balanced." Another comment, "It helped me stay grounded—especially when receiving news of additional friends testing COVID positive and them actually losing family members."

Effect of Workshop on Patient Care

After completing the 21-day challenge, respondents reported being kinder to patients. This kindness included having more empathy, patience, and compassion, which resulted in better patient service.

Fifteen respondents mentioned that they were **more empathetic and compassionate** toward patients. Comments included, "I noticed my overall empathy level went up. I was more actively engaged with the patients and felt more compelled to help." "I was more engaging and empathetic with my patients." "I was more empathetic with patients and my care teams." One person said, "I was more caring towards patients. Sometimes you forget that patients are scared and not used to being in the lab because we do this every day, so it made me more caring and humbler." Several mentioned having more compassion for patients. Another stated, "I was... ready to provide more compassionate care after completing my self-care."

Respondents mentioned **increased patience**. Individuals stated they found they were more patient in general, and one said, "I have more patience and understanding for my patients." Another person commented, "I noted that I have better patience with patients. With burnout, your patience runs thin, and you start getting irritated easily. In some ways, this exercise has helped me lengthen that short fuse I'd normally have when experiencing burnout." In addition, several respondents stated that they had more patience with staff and peers.

Respondents said they noticed they had **more to give**. One person said,

I have been working a lot in the vaccine clinic and the conscious acts of kindness really [shone] through. Providing wheelchair assistance to those who needed it, guiding them through the process of getting vaccinated, and just taking a few minutes to be at eye level and hear their stories, both good and bad.

One respondent said, "I felt like I had a little more in the tank to give. It also helped me recognize we are all needing some self-care." A second comment included, "I felt more positive and able to give 100% to my patients. Even if things became difficult, I felt a little stronger and did not react quickly."

Nurses used the wellness exercises themselves and **taught their patients to use them**. Responses included, "I noticed that I felt overall better with saying one kind thing or one

encouragement to each of my patients during the day." "I was able to redirect the patient into doing some deep breathing exercises with me, and he was able to calm down and appropriately verbalize what he needed." "I was speaking with a patient who had lost her husband. She just needed to talk things out because she had not yet. I told her about the gratitude exercise I do every day. She was so happy and thanked me."

Suggestions For Future Restore U Challenges

While many participants enjoyed the 21-day challenge and gave no suggestions for improvement, respondents made several requests for future programs.

Regarding advertising, individuals wanted to see more publicity about the 21-day challenge. Participants suggested that an "ambassador" in each department could promote the program. One person said that big posters could be placed in elevators. Another person suggested:

[There should be] even more advance press—maybe a couple of weeks of lead-up posters or email that highlights each of the 5 exercises and the evidence-based benefits on each. Maybe a poster or flyer that features on each one that gives the WHY (e.g., why should I do this anyway—what evidence is there that this may help me?) Thanks!

Attendees suggested **activities could be added** to the program. Some suggested activities included short, guided meditations, TED talks, a book club, and outdoor exercise options.

Participants suggested more **opportunities for interaction between 21-day challenge participants**. For example, one person suggested that class members send compliments to each other that could be posted on the institution's social media. Other ideas included having participants meet in the cafeteria. Another participant suggested that there be "a group chat/email thread that participants have access to communicate and share experiences. Other comments included having a "meet up for a walk/run challenge for participants," "onsite exercise opportunities," "zoom meeting socials to discuss some of the topics or experiences during the challenge," having departments track their progress and do the challenge together, "in-person celebrations and encouragements," having a blog for people to "connect with each other during the challenge," or having a "buddy" to "check in" with to be "more accountable."

Members wanted 21-day challenge organizers to make suggestions about **resources**. These included book suggestions regarding music and exercise videos. Other requests had "more ideas for conscious acts of kindness," "nutrition advice and recipes for worknights."

Nature of Learning

Respondents engaged in experiential learning. They participated in at least one of five activities daily (journaling, three good things, exercise, conscious act of kindness, and meditation) (personal communication, May 20, 2021). They reflected on these activities and noticed benefits from engagement in the activities (Kolb, 2014). For example, because of engaging in one of the five activities for three weeks, some individuals reported changes in attitudes (e.g., being more patient with self and others and being more empathic and caring) which is an example of changes

in "meaning schemes" (Mezirow, 2012, p. 84). Namely, as previously discussed, participation in one of the five activities resulted in participants reporting being calmer, more grateful, more positive, energized, focused, and more empathic, compassionate, and patient. We also uncovered individuals' need for social interaction during this learning opportunity. People wanted to interact online and in-person for support, encouragement, and perhaps for accountability.

Implications and Conclusions

Although our study's data is limited to comments on a survey, and we cannot tie participants' activities to their specific outcomes.

While many studies show the effects of these exercises on nurses themselves, in our study, some of the healthcare workers used the techniques on patients, including acts of kindness, and one participant said she suggested her patient use the gratitude journal. Therefore, program leaders may encourage participants to recommend these techniques to their patients and perhaps provide resources for teaching others how to do these techniques such as meditation and journaling.

Findings from this study inform adult learning theory. This study's results confirm the importance and value of social connection during learning events. Social connection is an aspect of learning. During social interactions, individuals can receive feedback (Kuhl et al., 2019) and enjoy being part of a group (Åberg, 2016), which can aid in learning. In healthcare worker settings, the social connection can often be seen as simply a good byproduct. However, in this study, we also found the participants expressed benefit of and desire for more social connection during the challenge. This confirms research that social cohesion mitigates the impacts of stress, trauma, and isolation during a disaster or extended traumatic exposure (Zalta et al., 2021; Nowicki et al., 2020).

Given the suggestions from participants regarding program changes, leaders may consider providing venues where participants can interact online or in person. Participants suggested using technology to give a sense of community, including having blogs, emails, or zoom meetings to discuss experiences and challenges. A WhatsApp community was piloted the second week of the challenge. About thirty people participated. Participant comments show that it may be advantageous to use apps as an option for program participation and for community support. Others recommended in-person meetings, having a buddy to check in with, or meeting up to do an activity. Having a program "ambassador" in each department may also help participants become excited and connect during the program. Learners enjoy the social aspect of learning activities. Learners also asked organizers to provide more resources, including books, music, and exercise videos. Perhaps leaders could provide lists of these resources and offer community-based resource-sharing tools (e.g., Microsoft Teams channel function, WhatsApp, or shared website). Leaders could also consider additional activities that learners suggested for the 21-day challenge should scientific evidence support the efficacy of these activities on participants' physical and mental health.

Program leaders may consider innovative ways to advertise the Restore U 21-Day Challenge. These may include posters in elevators, advance emails describing the program benefits, flyers, and perhaps a link to a web page describing the program.

Limitations of this study include that this program was conducted within one hospital enterprise in the northwestern United States. In addition, participants volunteered to participate, so we do not know this programs' efficacy for non-volunteers. Finally, the program was

conducted entirely online, preventing access for those healthcare workers who had limited access to technology.

Future studies may include demographic information such as race, ethnicity, class, gender, sexual orientation, and ability status to better understand their participants' demographic complexities. Additional questions regarding learning may help explain the nature of learning in these types of programs. Specifically, further exploration of transformational learning, including changes in attitudes toward self, others, and the world, may be in order. In addition, completing the 21-day challenge, respondents reported being kinder to patients. This kindness included having more empathy, patience, and compassion, which resulted in better patient service. This finding needs more exploration to consider how patient care improves the patient's perception of care. Future studies could consider how other healthcare organizations have integrated these programs at the organizational level and compare results. Last, future studies may consider how these programs may improve the organization's retention of workers. A more in-depth qualitative study using semi-structured interviews could further explore the program's effects on participants, patient care, and the learning that occurred due to participating in the program.

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1. Title of the submission (be sure to use proper capitalization)

A Support System for a Remote Lesson using Abstract Students' Facial Expressions and Concentration

2. Topic area of the submission (choose a topic area from the list at the top of this page)

Educational Technology

3. Presentation format

Paper Session

4. Description of the presentation

In this study, we develop a support system for remote lessons. Since 2019, due to the covid-19 pandemic, we are forced to refrain from face-to-face interactions. For preventing the spread of infection, the demand for remote work is increasing. In remote classes, students' cameras are difficult to use due to privacy issues. To solve these problems, we develop a system that teachers can check students' behaviors.

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A Support System for a Remote Lesson using Abstract Students' Facial Expressions and Concentration

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Keywords: Facial expressions, Concentration power, Remote lessons, Remote class

1. Introduction

Since 2019, due to the covid-19 pandemic, we are forced to refrain from face-to-face interactions. For preventing the spread of infection, the demand for remote work is increasing. In the education area, classes are mainly being the remote classes. The benefits of remote classes are significant, such as reducing time for attending school and not being affected by location. Typically, in the face-to-face class, the teacher can glance at the students' reactions. However, in remote classes, students' cameras are difficult to use due to privacy issues. To solve these problems, we develop a support system for reaction communication in the remote classes.

Our university uses the zoom system for teaching. The zoom has a function to display the students' faces using a web camera. However, from a privacy perspective, our university does not require turning on the students' camera. Teachers request reactions such as icons and chats from students to get students' reactions, but the response is thin. In addition, since there are one-to-many teachers and students in classes, it is not easy to check all the students all over. Therefore, we need a system that has a checkable function for students' facial expressions and concentration power. We want to support teachers in the early detection of reluctant students.

2. Entire of the system

This system clarifies the reaction while considering the privacy of the student. For this purpose, we specify the system's requirements into the following three items.

- (1) Display students' concentration power by color,
- (2) Display students' nodding and line of sight by using the facial image,
- (3) Display (1) and (2) in real-time.

In (1), this system determines concentration power in three stages from the image taken with the camera and projects onto colored information as colorless is a high concentration, yellow is a slightly decreased concentration, and red is a low concentration. This method allows the teacher to see students' attention. In (2), the teacher wants to see students' motions such as nodding and line of sight. However, we point out that sending and collecting raw photos has a problem with privacy and

security. At least, our university prohibits a teacher forces students to enable the camera. Thus we propose a method that draws and collects anime-character instead of raw video. In (3), real-time is essential for these processes. The teacher wants to check the students' concentration power, eyes and nodding in the classes as soon as possible. Fig. 1 shows the actual screen.

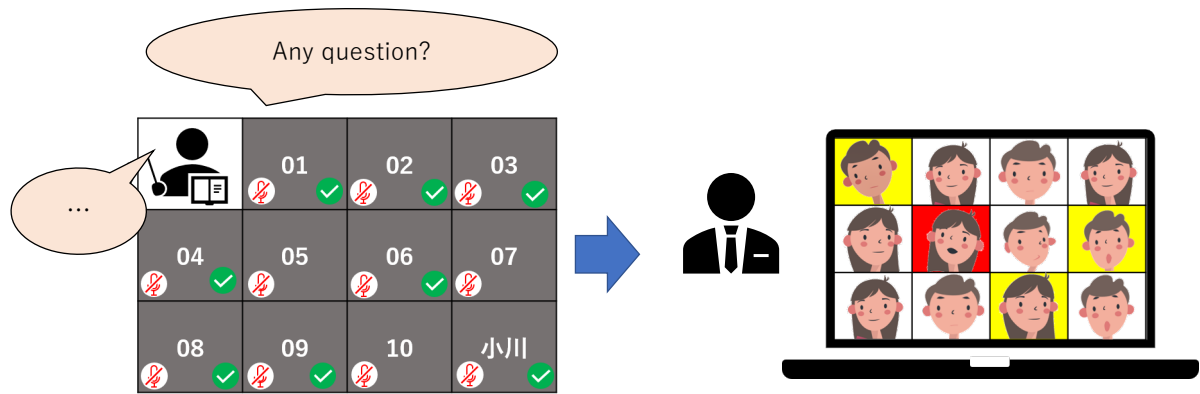


Fig.1 Abstract facial expression.

The overall design of this system has the following four items.

- (1) Assesses student's concentration power and captures student's face motion,
- (2) Projection and illustration of concentration power to colored information,
- (3) Aggregation on the server,
- (4) Display on the web.

Fig. 2 shows the flow of the overall design. Essential functions of this system are carried out on student's pc. In (1), a web camera captures a student's face, and our python program assesses concentration power from a captured photo. In (2), concentration power is projected onto three levels of colored information: colorless, yellow, and red. Moreover, motion data is captured and onto the illustration. Color-based information and illustrations are displayed on the same screen, and graphic data for one person is created. In (3), A server aggregates all students' graphic data by using the zoom system. In (4), a teacher can check all students' reactions by using zoom without customizing.

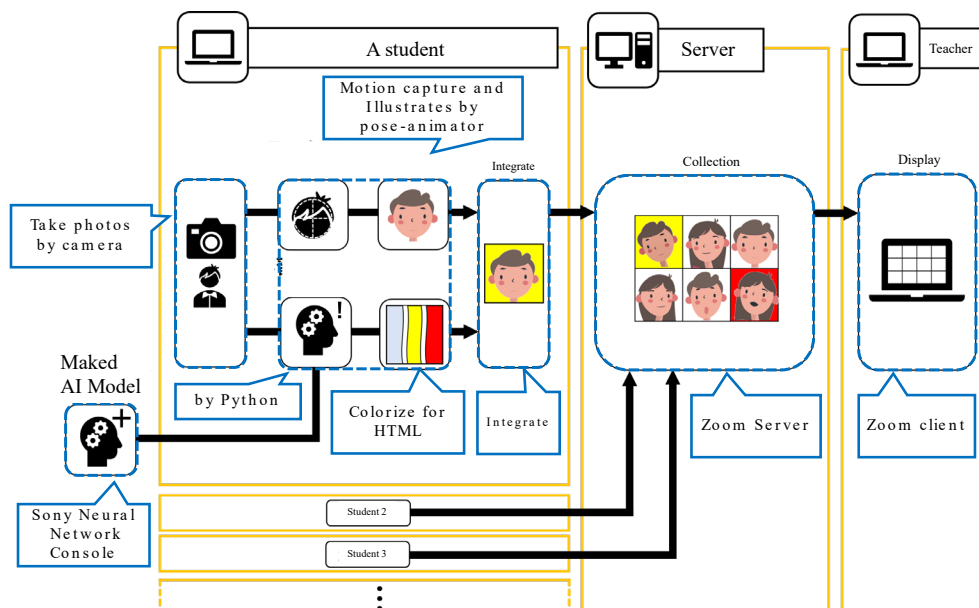


Fig.2 Entire of the System.

3. Methods and Results

3.1 Reading facial expressions

The system captures the student's face using a camera with the computer and passes the photo to the pose-animator. The pose-animator determines the facial skeleton and line of sighting as motion data. Motion data is classified into contours, ears, eyebrows, eyes, nose, mouth, and the corresponding parts move. For example, if the student is facing sideways, the anime character follows it, and if a student opens their mouth, the anime character also opens its mouth. Fig. 3 shows the state.

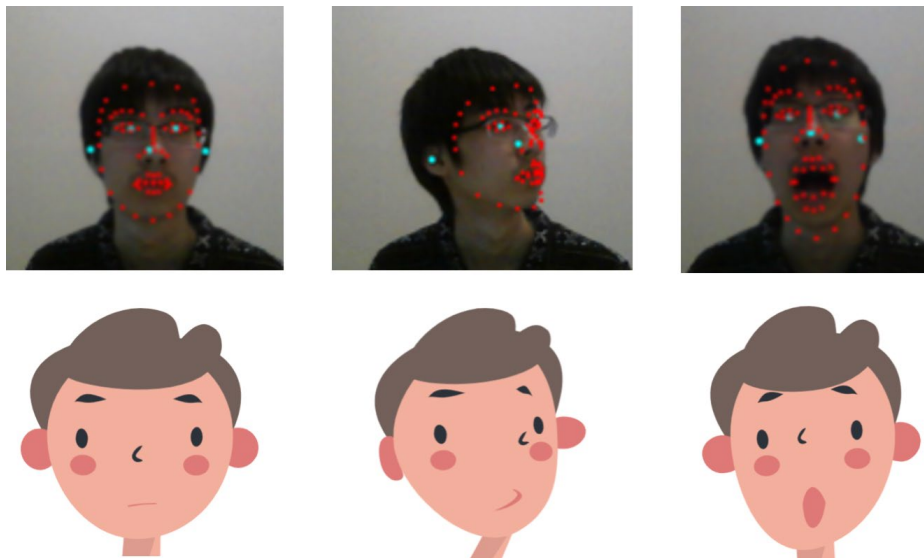


Fig.3 pose-animator demo.

3.2 Determining concentration power

The system determines concentration power using the SONY Neural Network Console (SNNC for short) based on a photo captured by a Web camera. SNNC is an integrated development environment that enables neural network design. Neural networks can be designed to create and evaluate learning models from large amounts of images. First, a user classifies each student's photo into three stages of the concentration power: high, slightly decreased, and decreased. Most classified images are used as training data, and several images are used as test data for cross-validation. SNNC creates a learned neural network model for classifying concentration power by using these photos. The learned model is used in our system for real-time assessment. Table 1 shows the results of the performance of the model.

Table.1 Confusion matrix.

	High concentration (Prediction)	Slightly decreased (Prediction)	Decreased (Prediction)	Recall
High concentration	90	1	1	0.978
Slightly decreased	0	65	4	0.942
Decreased	4	0	16	0.800
Precision	0.957	0.985	0.762	
F-Measures	0-968	0.963	0.780	

The summary of this result is followings.

- Accuracy: 0.968
- Average of the Precision: 0.901
- Average of the Recall: 0.907
- Average of the F-Measure: 0.904

The amount of accuracy was 96.8%. The average precision was 90.1%, but the prediction of the decreased concentration was 76.2%. We guess that the low precision was caused by a few images of the number of photos for decreased concentration. Similarly, the average of the recall on decreased concentration was also low. Even if the prediction accuracy is not very high, we think it would be enough if a teacher wants to check the concentration at the timing required by oneself because this system keeps updating the prediction throughout it is running. In this study, it was difficult to collect much data that showed a decrease in concentration. In addition, this time, there was only one subject. We think that more collecting photo data will contribute to improving prediction accuracy in the future.

4. Conclusion

In this study, to clarify the reaction while considering the students' privacy, we developed a remote class system that a teacher can check students' concentration power by color information and confirm behaviors such as nodding and line of sight by using real-time facial images illustration.

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The Empowering Course Choice: Identifying Psychological Perspectives and Linguistic Backgrounds that Lead to College Writing Courses

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Abstract

This study explores how Directed Self-Placement (DSP) at San José State University (SJSU) empowers students to choose their first-year writing courses, taking the factors (e.g. linguistic backgrounds and prior learning experiences) that led to their decisions into account. Previously, students were placed into writing courses using their high school transcripts and standardized test scores. Starting from the academic year 2018-19, students were able to place themselves into a writing course of their choice via DSP. Students make informed decisions about which class to choose (one semester ENGL 1A or a year-long Stretch). This study investigates the relationship between DSP and student learning outcomes as well as factors affecting students' course choices. Do students perform differently when given the power to choose their writing courses? How does DSP empower students and change their learning outcomes?

Over the past several years, San José State University has eradicated traditional processes of placing students in first-year writing courses in favor of a more equity-minded, empowering method: directed self-replacement. In order that students make informed decisions about which class to choose (ENGL 1A can be taken as a one- or two-semester course, for instance), every incoming freshman is required to complete the Reflection on College Writing.

The data was obtained through five surveys and institutional data. Apart from the exit survey, the surveys were structured as multiple-choice questionnaires through which students self-reported their comfort and confidence in reading and writing on a Likert scale. Students also self-reported their language backgrounds and identified which writing course they chose. Additionally, they were allowed to enter opened-ended information on the exit survey. Institutional data included grades and students' responses on DSP. The timeline of this current study ranged from AY 2015 to 2020, and the sample was comprised of 18,101 students. The data was analyzed using univariate and bivariate analysis.

The results suggested that students know how to place themselves into courses that best meet their learning needs via DSP. This study also implied that such empowerment directly contributes to student learning outcomes. Student learning is a multifaceted concept, and the data collected in this study certainly cannot fully capture every aspect of it. Since the focus of this study is based on writing, the results should not be generalized to other disciplines. Based on the results of this study, we recommend continuing DSP for first-year writing programs to allow students to meet their own learning needs.

Keywords: Course choices, prior learning experience, writing confidence, writing comfort, language backgrounds, and student learning outcomes

Results from the Transforming RN Roles In Community-Based Integrated Primary Care (TRIP): Lessons learned from clinical partners, students, faculty and the RN work force

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Abstract

Background. The Committee on the Future of Nursing, multiple nursing accreditation agencies and nursing workforce projections have recently highlighted the need for role expansion of the registered nurse (RN). Factors contributing to this need include the aging US population, health inequities (e.g. disproportionate lack of health insurance among Black and Asian persons, nationwide increases in chronic diseases in limited access communities, and the impetus provided by health care reform and the Affordable Care Act. To prepare nurses to function in expanded roles, educators across disciplines must work together to provide team based opportunities for students to focus on social determinants of health and health equity in didactic and clinical settings. The Transforming RN Roles In Community-Based Integrated Primary Care (TRIP-now early in year four) curriculum is a federally funded research project that marries an innovative interprofessional (nursing, pharmacy and nutrition) undergraduate nursing curriculum with RN workforce development. Having overviewed our implementation plan during a past HICE poster session (2019), we will share work in progress results and lessons learned in this interactive presentation.

In this paper session, we will present the results (to date) of TRIP activities from multiple perspectives, including those of interprofessional faculty, clinical partners, faculty, evaluation team members and students. We will review lessons learned concerning project planning, team building, student recruitment, and evaluation activities. Attendees will engage in facilitated discussion to brainstorm implementation strategies specific to their unique settings as time permits.

TRIP objectives:

1. Expand university academic-practice partnership with interdisciplinary clinical immersion in the same integrated primary care clinic for 300 hours over two years

2. Add team based, interdisciplinary didactic and simulations on vulnerable populations, culturally competent care, chronic diseases, recovery based care, and childhood obesity.
3. Provide a 15 day leadership development program for university faculty and RNs at clinical partner sites.

Methodology. Our independent evaluation team used a mixed-methods design with rapid cycle evaluation to simultaneously describe processes, outcomes and contexts. Telephone interviews were conducted with faculty each semester and with clinical partner nurses semi annually. Nursing students participated in 4 focus groups - one every semester. Leadership development program attendees completed an objective evaluation tool one and six months after the program.

Outcomes. As of this writing a total of 91 students have participated in the TRIP curriculum (37 nursing, 26 pharmacy, and 28 nutrition); a fourth cohort of 16 nursing, 8 pharmacy and 8 nutrition students began in fall 2021. Student feedback on interprofessional clinical and didactic experiences highlights growth in a number of areas. Student focus group comments demonstrate an increased awareness of the impact of social determinants on health outcomes, confidence in the use of communication techniques to evaluate/ address mental health needs and an enhancement of leadership skills. RNs at clinical partner sites expressed a high level of commitment to the partnership. As one RN stated, “This academic-clinical partnership by far has been the most rewarding venture in my 35 years of work in nursing”. Unsurprisingly, the biggest obstacle cited was COVID 19, which necessitated multiple clinic closures and staffing changes that forced student reassignments. Communication and flexibility were key to navigating this very challenging situation. Additional COVID Cares Act funding was used to purchase personal protective equipment for students and clinical partner RNs, faculty clinical site visits were conducted remotely, and students participated in COVID vaccination clinics at partner sites for clinical credit.

Future Directions. The TRIP curriculum has funding support through June 30, 2022. In addition to our work with students during year 4 (fall 21-spring 2022), priority will be given to developing sustainability plans including securing commitments from interdisciplinary partners, faculty education and increasing numbers of primary care clinical sites.

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1. Title of the submission.

Navigating a New Ethnic Studies Requirement through Shared Governance with Integrity, Speed, and an Antiracist Lens

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5. Abstract.

This article is a case study in the implementation of an Ethnic Studies requirement in a public university with a tradition of shared governance. It reveals that hallmarks of university shared governance, such as deliberative consultation and faculty control of curriculum, are frequently at odds with bold, expeditious, and antiracist curriculum redesign. The authors explain how they navigated entrenched policies and procedures in order to effect urgently-needed curriculum change with integrity and consultation. AB-1460, a 2020 California state law, mandated 23 California State University (CSU) campuses to add a one-course Ethnic Studies undergraduate graduation requirement. The law defined Ethnic Studies as the study of “four historically defined racialized core groups: Native Americans, African Americans, Asian Americans, and Latina and Latino Americans” (Assembly Bill No. 1460, 2020). The authors describe and reflect on the journey of one of the CSU campuses in fully realizing AB-1460. CSU, Chico enrolls approximately 16,000 students in Northern California. It is both a Hispanic-Serving Institution with 38.92% of students from historically underrepresented groups, and a primarily white institution with only 11% of employees from historically underrepresented groups. The authors use firsthand experiences, personal communication, and public meeting records to describe the successes, challenges, pushes, and pulls with shared governance at their public institution in developing a new general education requirement and where Ethnic Studies curricular decisions are situated. The authors acknowledge the systems of oppression which undergird higher education and the complex institutional structures of shared governance that are not designed for antiracist initiatives or systemic equality. Cultural taxation of faculty added complexity and sensitivity in structures. The paper ends with recommendations for other institutions of higher education to consider when embarking on an Ethnic Studies requirement and course development, specifically at primarily white institutions.

Keywords: Ethnic Studies, shared governance, systemic oppression, general education

**Navigating a New Ethnic Studies Requirement through Shared Governance
with Integrity, Speed, and an Antiracist Lens**

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**Navigating a New Ethnic Studies Requirement through Shared Governance
with Integrity, Speed, and an Antiracist Lens**

“The rules of the culture of power are a reflection of the rules of the culture of those who have power” (Delpit, 1988, p. 282). As public discourse about Critical Race Theory (CRT) fills the media (see George, 2021), we are called to share our recent work with navigating a recent California law (AB-1460) which bridges theory to practice and reveals structural oppressive practices in higher education. AB-1460 mandated our public university to create an Ethnic Studies undergraduate course requirement. Through a generative process we engaged in shared governance and unintentionally exposed the systemic oppression that exists in higher education. The aim of our paper is to share our process of navigating politically charged, oppressed spaces to offer students Ethnic Studies courses with integrity and in the spirit of the law. We identify that university policies and procedures once designed to uphold values of consultation, deliberation, and transparency were oftentimes misused to maintain the status quo rather than to pursue an urgently-needed Ethnic Studies requirement. First, we provide the context of our work. Next, we elaborate on the timeline of events leading to our current progress. We end our paper with recommendations for other institutions of higher education to consider based on our lessons learned.

AB-1460 is a California state law that mandates all 23 California State University (CSU) campuses to include one Ethnic Studies course as an undergraduate graduation requirement, starting with students who matriculate as first-time freshmen in Fall 2021. The law specifically defines Ethnic Studies as studying one of “four historically defined racialized core groups: Native Americans, African Americans, Asian Americans, and Latina and Latino Americans” (Assembly Bill No. 1460, 2020). As a result of the law, CSU graduates will better understand

diverse communities and, therefore, be “responsible and constructive citizens” in society. This paper’s authors acknowledge that the letter of the law is inherently flawed as Native Americans have political standing as citizens of sovereign nations and do not self-identify as a “racialized core group.” This speaks to the systemic oppression deeply seeded in the present-day United States of America, but it is beyond the scope of this paper. Notwithstanding the misguided classification of Native Americans as a racial group, the current language and scholarship of antiracism informs the authors’ approach to university policymaking and implementation. During the 2020-2021 academic year, as CSU, Chico implemented the Ethnic Studies requirement, the campus also participated in a year-long community read of Ibram X. Kendi’s *How to Be an Antiracist*. Kendi views racist policies as the cause of racist inequities, and clearly articulates a view of antiracism that foregrounds policymaking since “to fight for mental and moral change as a prerequisite for policy change is to fight against growing fears and apathy, making it almost impossible for antiracist power to succeed” (Kendi, 2019, p. 208). At CSU, Chico - and in the CSU system more broadly - the decades-long fight for Ethnic Studies sought to change minds before changing policies, and the frustratingly slow results support Kendi’s observation. Finally, exasperated by years of inaction, in 2020 the State of California forced the conversation to shift towards policymaking, and that is where our work has taken place.

Systems of oppression are ubiquitous in institutions of higher education. Retention, tenure, and promotion practices provide examples of systemic oppression that illustrate similar challenges with campus policy making. Paul Harris’ 2020 case at the University of Virginia (UVA) is an example of systemic oppression in higher education. Once denied tenure, Dr. Harris requested a reason for the denial. The White faculty on his retention, tenure, and promotion committee commented that his publication in the *Journal of African American Males in*

Education appeared to be self-published, despite leading scholars publishing in the same journal with an acceptance rate for publication of about 20 percent (Flaherty, 2020). Brayboy, Solyom, and Castagno (2015) point to how faculty, specifically American Indian faculty, are taxed with demands that are beyond the scope of their appointment and campus involvement of colleagues that do not identify as American Indian. Campuses have disproportionately higher expectations for historically marginalized faculty, but with lower representation they are expected to survive in a system that does not honor the cultural tax placed on faculty of color. Thus, when policies are made at institutions of higher education, it is imperative that administrators and faculty are responsive to campus policies that either unfairly over-extend faculty of color or tokenize faculty based on their genetic makeup. In general, retention, tenure, and promotion, and cultural taxation are areas where racist and antiracist university policies come into conflict. This article extends this conversation by examining shared governance as a place where university policymakers can stand in the gap,¹ acknowledge cultural differences on campus, or silence voices.

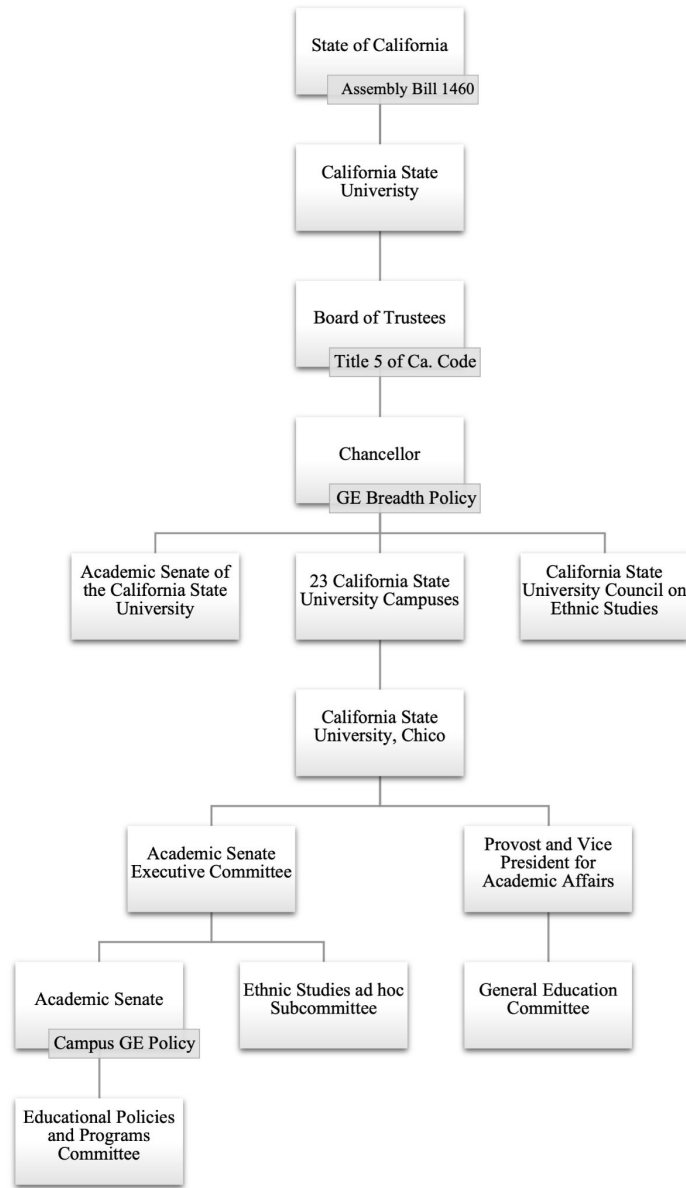
Shared Governance

The implementation of an Ethnic Studies requirement at CSU, Chico was the result of an intense process that both furthered and frustrated existing structures of university shared governance. As one of 23 campuses in the California State University system, CSU, Chico is governed by a complicated web of government agencies, each with unique policies, procedures, and shared governance institutions and traditions. *Figure 1.* indicates CSU, Chico's organizational structure, specifically illustrating where the Ethnic Studie ad hoc subcommittee sits within the structure.

¹ According to *Webster's Revised Unabridged Dictionary*, "To stand in the gap is to expose one's self for the protection of something; to make defense against any assailing danger, to take a place of a fallen defender or supporter. "

Figure 1

CSU, Chico Ethnic Studies Organizational Chart



In May of 2017, the university reaffirmed a commitment to shared governance, defined as “a process of consultation toward achieving joint decision-making between faculty, staff, students, and administrators,” identifying “consultation [as] the key component of effective shared governance,” and “the Academic Senate [as] the primary consultative body ‘to formulate, recommend, review, and revise all academic...policies’” (California State University Chico,

2017). The Academic Senate, however, did not formulate the Ethnic Studies requirement, and this is fundamental to understanding the implementation challenges on our campus. Earlier attempts to implement a systemwide Ethnic Studies requirement, as recommended by a 2016 CSU system Task Force on the Advancement of Ethnic Studies, could not overcome university shared governance that strongly defended “local flexibility,” “campus autonomy,” and “local procedures” (California State University Chico Academic Senate, 2019a). In the same year, CSU, Chico’s Academic Senate passed a “Resolution to Reject the General Education Taskforce Report” that encouraged the Academic Senate of the CSU to “reject the...report as a violation of the tenets of genuine shared governance, implementation of which would infringe upon faculty curricular authority” (California State University Chico Academic Senate, 2019b).

Shared governance is slow and deliberative by design: CSU, Chico’s Academic Senate “resolved that the Chancellor’s office must respect the curriculum and revision processes on campuses by allowing a lengthy implementation timeline for any GE Changes.” However, state lawmakers grew increasingly tired of this argument. In a letter to CSU Chancellor Timothy White, State Senator Richard Pan remarked that “I find it troubling that neither the CSU nor the ASCSU have taken more swift action on a recommendation that was internally driven by CSU administrators and faculty alike” (R. Pan, personal communication, July 8, 2019).

Assemblymember Shirley Weber explained that she authored the Ethnic Studies bill (AB-1460) because the CSU was too slow to establish an Ethnic Studies requirement (Associated Press, 2020). On August 17, 2020, California's Governor, Gavin Newsom, signed the bill into law, mandating that the CSU system require Ethnic Studies courses “commencing with the 2021-22 academic year,” and thus prioritizing a speedy delivery of Ethnic Studies and social justice over

slow and deliberative shared governance structures and processes. This clear and explicit challenge to the norms of shared governance set the stage for months of conflict.

In the Summer of 2020, when it was clear that AB-1460 would soon become law, the CSU Board of Trustees took steps to add a new requirement to General Education (GE), “Ethnic Studies and Social Justice.” The trustees, aware that the assembly bill would forbid adding units to graduation as a result of the implementation of the requirement, approved a reduction of units in the Social Sciences in order to accommodate the new GE Area. This immediately created tension on our campus and throughout the system. At a meeting of CSU, Chico’s Academic Senate on October 22nd, the agenda was amended to add a “Resolution in Opposition to the Chancellor’s Implementation of Ethnic Studies (AB-1460).” The resolution reiterated concerns about an “impossible timeline to ensure appropriate consultation,” as explained further in the minutes of the Academic Senate meeting as “a hurried, overly bureaucratic, narrow approach with too many deadlines...not worthy of the majesty of the educational process and mission. We are the faculty, and we need to slow the pace so that we have time to consider all the ramifications locally and across the system” (California State University Chico Academic Senate, 2020, October 22, p.12). In addition to other concerns, the Senate also took exception to the reduction of units in the Social Sciences to accommodate Ethnic Studies as “diminish[ing] the breadth of a liberal arts education...antithetical to educating an informed citizenry, and...indefensible in light of the CSU’s mission to advance and extend knowledge and learning throughout California and prepare significant numbers of educated and responsible people to contribute to California’s future” (California State University Chico Academic Senate, 2020b) The Senate decided that the cost of Ethnic Studies was too high, and the speed of implementation too fast. At the end of the discussion in the Senate, senators suspended normal rules, which

require at least two meetings to approve items, in order to approve the resolution unanimously at one meeting. Significantly, the text of the resolution was not shared with the campus before its approval.

Within months of AB-1460 becoming law, the main points of tension between Ethnic Studies implementation and shared governance had become clear: 1) time; 2) consultation and transparency; and 3) faculty control over the curriculum. In short, in the absence of time, shared governance institutions outside of the Academic Senate sought to quickly maximize consultation and transparency, but this led to complaints about faculty losing control over the curriculum which tried to undermine the hard work of Ethnic Studies experts. With the urgency of the implementation timeline in mind, our campus required new or changed courses to be advertised for two weeks while classes are in session, and for the 2021-2022 university catalog any changes needed to be approved by the end of the Fall 2020 semester. This meant that Ethnic Studies courses for Fall 2021, the implementation date required by law, had to be advertised to the campus by November 30, 2020, just five weeks after the Academic Senate passed a Resolution in Opposition to the Chancellor's Implementation of Ethnic Studies. The Academic Senate urged patience and deliberation, and expected that the Board of Trustees would respect shared governance and rescind its changes to General Education in the face of mounting concerns raised by academic senates across the CSU system. In order to meet the Fall 2021 implementation deadline, however, as required by AB-1460, other shared governance institutions on campus stepped into the gap.

As soon as AB-1460 became law, at the beginning of the Fall 2020 semester, CSU, Chico's General Education Committee started to take the necessary, transparent, and consultative steps required to facilitate the creation and implementation of an Ethnic Studies requirement. Dr.

Jason Nice, co-author of this article, was the Chair of the General Education Committee (known locally as the Curriculum Advisory Board) throughout this process. The first and most important step was to formalize the role and official standing of Ethnic Studies faculty in the implementation process. The General Education Committee is an advisory committee of the Provost and Vice President of Academic Affairs, not the Academic Senate, and therefore its shared governance *bona fides* are regularly challenged despite being composed of 19 faculty and students from across campus, as well as several non-voting staff and administrators. The Chancellor's Office of the CSU system encouraged campus GE committees to review new and existing courses, but without Ethnic Studies representation the CSU, Chico GE Committee refused to comply until the university created a structure to ensure the full participation of campus Ethnic Studies experts. This action upheld both the CSU, Chico and CSU Academic Senate's requests for genuine collaboration with Ethnic Studies faculty, and is of paramount importance for any campus seeking to implement an Ethnic Studies requirement.

On September 25th, the Academic Senate Executive Committee created an Ethnic Studies ad hoc subcommittee, which reported to the Executive Committee, and thus attempted to control the Ethnic Studies subcommittee. This committee was charged with providing "disciplinary expertise and consultation" on the implementation of Ethnic Studies, and it charged the General Education Committee with consulting with the Ethnic Studies ad hoc subcommittee "on all aspects of the implementation of the Ethnic Studies requirement." On October 1st, the Executive Committee issued a call "for self-nominations from all ranks of faculty across CSU, Chico, including lecturer colleagues, with disciplinary expertise within the "four historically defined racialized core groups: Native Americans, African Americans, Asian Americans, and Latina and Latino Americans" (Assembly Bill No. 1460, 2020). Nominations were reviewed and

the committee was selected by the Chairs of the General Education Committee, Department of Multicultural and Gender Studies (which houses the aforementioned Ethnic Studies programs), and Educational Policies and Programs Committee (a senate committee). On October 13th, the Ethnic Studies ad hoc subcommittee was formed. The subcommittee consisted of 10 faculty from across campus who elected as Chair Dr. Browning Michael Neddeau, a co-author of this article. Nine days later, the Academic Senate approved its Resolution in Opposition to the Chancellor's Implementation of Ethnic Studies.

In Fall 2020, the Ethnic Studies ad hoc subcommittee recommended nine courses to the General Education Committee. All recommendations were approved for the Fall 2021 schedule of classes. It was during the expedited recommendation and approval process that the Ethnic Studies ad hoc subcommittee decided on how to present its recommendations. The subcommittee recommended two courses for each of the "core racialized groups" identified in AB-1460 to keep the recommendation equitable across the groups. The subcommittee also recommended one intersectional Ethnic Studies introductory course which did not favor scholarship of one group. It is important to note here that the subcommittee did not believe that Ethnic Studies should be limited to lower division coursework, as specified in AB-1460. The subcommittee, therefore, recommended one lower- and upper-division course per group, acknowledging that this decision is an extension of the mandate.

Early on in the subcommittee work, the subcommittee acknowledged that they did not have the expertise for all "racialized groups," yet they were tasked to prepare and recommend courses for all groups. Specifically, the subcommittee lacked an African American Studies scholar. This acknowledgment highlighted a knowledge gap and a hiring need for the institution in fully realizing any of the Ethnic Studies recommendations: each discipline has its own experts.

To address this concern, the subcommittee acknowledged their shortfall and used previous course syllabi and their expertise in curricular alignment to construct course offerings with integrity. The subcommittee worked swiftly to ensure that all nine recommended courses centered voices from the specific “racialized groups,” including in assigned readings, videos, and lecture materials.

The accelerated timeline for presenting the Fall 2021 course recommendations triggered calls to slow down the process. The concern resulted in the university’s Academic Senate discussing the fate of recommendations from predominantly scholars of color. This came to a head on February 4th when the Academic Senate discussed whether to create an interim policy to formally enact an Ethnic Studies requirement for Fall 2021 implementation, or refuse to do so and delay implementation by a year or more. The Chair of the Academic Senate explained that “there has been controversy about how the CO [Chancellor’s Office] took over implementation ... [and] faculty senates across the system and at the Statewide Academic Senate objected to the lack of consultation with the faculty of the CSU who are supposed to control the curriculum. They called for the CO to slow its implementation timeline and consider more faculty input” (California State University Chico Academic Senate, 2021, February 4, p.10). During the ensuing discussion, one co-author of this paper responded to the clear questioning of the scholars of color expertise and attention-to-details in the process. The letter outlined how the Ethnic Studies ad hoc subcommittee met all of the assigned deadlines and engaged with other stakeholder groups on campus. The letter closed by intentionally aligning the work with the university’s strategic plans and commitment to “together we will.” The concluding paragraph stated:

“I would be remiss if I did not acknowledge that CSU, Chico's Strategic Priorities include Equity, Diversity, and Inclusion. Under Equity, Diversity, and Inclusion, we specifically commit to, "develop and enhance policies, programs, and activities that support an inclusive, accessible, and equitable learning and working environment." Ethnic Studies did not emerge out of AB-1460, but it provided windows and doors for us to fully realize gaps in our policies, programs, and activities. Our Strategic Priorities promise our students and communities that "together we will." Now is our time to honor the important work our Ethnic Studies ad hoc subcommittee invested in preparing our campus to be a leader in implementing AB-1460 with integrity. It is also a moment in time where we can honor our ancestors as we recite "Together we will" as we are what our ancestors' dreamed” (California State University Chico Academic Senate, 2021, February 4, pp.11-12).

In the end, after lengthy discussion, on the following day the Executive Committee of the Academic Senate approved the interim policy. CSU, Chico overcame a challenge and remained on schedule to implement an Ethnic Studies requirement in Fall 2021.

In Spring 2021, the Ethnic Studies ad hoc subcommittee turned to recommending courses for the following academic year (Fall 2022). Acknowledging and reflecting on our practices for Fall 2021 recommendations, the subcommittee approached the Fall 2022 charge following the same process, but added support for potential courses. The subcommittee created a worksheet for potential proposing course authors to complete. One of the subcommittee members submitted a course and the subcommittee worked through the course materials as a way to generate a

supportive worksheet to share with other proposing courses. This was the only addition to the process and helped ensure the integrity of Ethnic Studies in the recommended courses. Despite this extra guard to protect the integrity of Ethnic Studies, the new requirement will include a redistribution of resources, and some faculty outside of Ethnic Studies called out the integrity of the process in order to protect their courses' enrollments. This disruption led to additional cultural taxation (Padilla, 1994) of the subcommittee who had already made their recommendations, without opposition, the previous semester. It was only when a White faculty member wanted their department to receive the Ethnic Studies designation for a course that the recommendation process was questioned. Personal and racist attacks on the integrity of the process were sent to Ethnic Studies scholars. In the end, three courses were recommended and approved for Ethnic Studies. Within one academic year, therefore, 12 Ethnic Studies courses were approved for the institution.

At the same time that the Ethnic Studies ad hoc subcommittee reviewed and recommended courses, the campus continued discussions to replace the interim policy with a permanent policy. The minutes of the Academic Senate, the Academic Senate's Curriculum Subcommittee, and the General Education Committee from October 2020 through May 2021 revealed a number of obstacles to Ethnic Studies implementation, but the two most salient issues for other institutions concerned the existing diversity requirement and which academic department(s) should host Ethnic Studies courses. As early as 1992, students at CSU, Chico have been required to complete a "Diversity" graduation requirement, consisting of one course in US Diversity and one course in Global Cultures. In the 2020-2021 catalog, 56 courses in general education and an additional 24 courses outside of general education met the US Diversity Requirement. Many universities have a similar requirement, which introduces students to the

intersectionalities and complexities of differences among people, such as those based on race, ethnicity, ability, age, class, culture, gender identity and expression, political affiliation, regional and national origin, religion, and sexuality. Early in the implementation process, a question arose whether the Ethnic Studies requirement would or should replace the broader US Diversity requirement, and if a new graduation requirement should take its place. In a 2019 ballot, students at CSU, Chico voted 3276 to 587 to “encourage the university to incorporate climate change education in all fields of study” (Associated Students, 2019, p. 10) and during the implementation of Ethnic Studies there was a difficult and painful discussion between climate change advocates who wanted to reimagine the US Diversity requirement as a Climate Change requirement, with perhaps a diversity or justice emphasis, and others who wanted to require that students continue to receive instruction in areas of diversity beyond the scope of Ethnic Studies. These discussions took place in Senate committees that did not invite the Ethnic Studies ad hoc subcommittee, and in other places like the GE Committee that did. Eventually, a consensus emerged at CSU, Chico to require Ethnic Studies in addition to the existing Diversity requirement. As one dean remarked, “I cannot believe in 2021 we are still having to navigate policies that pit marginalized groups against one another, forcing us to choose between them, and continue to limit our students’ exposure to a truly diverse curriculum” (T. Butts, personal communication, January 20, 2021).

The second issue that will be relevant for campuses adopting an Ethnic Studies requirement concerns the institutional location - or academic department - of Ethnic Studies courses and faculty. The systemwide policy on Ethnic Studies states that “to be approved for this requirement, courses shall have the following course prefixes: African American, Asian American, Latina/o American or Native American Studies. Similar course prefixes (e.g., Pan-

African Studies, American Indian Studies, Chicana/o Studies, Ethnic Studies) shall also meet this requirement. Courses without ethnic studies prefixes may meet this requirement if cross-listed with a course with an ethnic studies prefix” (California State University, 2020, Article 4, Area F). At CSU, Chico, one academic department (the Department of Multicultural and Gender Studies, known as MCGS) schedules courses for all Ethnic Studies prefixed courses.

Early on and throughout the Ethnic Studies implementation process, a White senator from a non-Ethnic Studies field referred to this as “apparent veto power” (California State University Chico Educational Policies and Programs Committee, 2014, p. 4). Repeatedly, the language of shared governance (in this case faculty control of curriculum but in other cases the speed of implementation) has repeatedly undermined the expertise of Ethnic Studies faculty. Nevertheless, the institutional (and therefore the resource) location of Ethnic Studies is not a simple question. In the opinion of one dean, “ethnic studies is not discipline specific. It encompasses more than the social sciences. As a person who teaches African American literature, I cannot imagine an Ethnic Studies option that does not include literature, history, art, or music. As a former director of [Multicultural and Gender Studies], how do we justify the divorcing of the social sciences from the arts and humanities, from communication studies, from the sciences, when faculty in those colleges and disciplines have been significant contributors to [Multicultural and Gender Studies] and ethnic studies on this campus?” (T. Butts, personal communication, October 26, 2020). These are questions that every university implementing an Ethnic Studies requirement will face, and they are unresolved at CSU, Chico. However, it is the opinion of many that the spirit of the law and system policies creating the Ethnic Studies requirement is intended to build Ethnic Studies programs. At CSU, Chico, the proof is in the pudding: the Department of Multicultural and Gender Studies applied for an emergency mid-year

hire in Black/African American Studies with a rationale that “this request is directly related to the requirements of AB 1460 Ethnic Studies and Chico State’s ability to comply with the resulting Title 5 revisions” (S. Green, personal communication, February 3, 2021). After completing interviews, the Provost approved *three* new hires in the field of Black/African American Studies. The implementation of an Ethnic Studies requirement, with courses housed or cross-listed in one department, may have done more towards diversifying the faculty at CSU, Chico than any other single initiative.

Recommendations

Navigating cultures of power and structural racism in higher education may present differently at each institution given multiple factors such as communities served, policies, procedures, governance structure, and whether the institution is public or private. It is with acknowledging the rainbow of possibilities that we offer the following recommendations based on our experience in a public institution of higher education.

First, if possible, have campus leaders (Administration, Academic Senate, Ethnic Studies departments) set a clear and firm deadline to implement an Ethnic Studies requirement. In the work described in this paper, a recent law (AB-1460) mandated implementation within one academic year. The CSU system spent six years trying to create an Ethnic Studies requirement, but there was never a firm deadline until legislators finally imposed one due to frustration with years of apparent inactivity. However, AB-1460 overcompensated for lost time and created a one-year implementation period that curtailed the length of time allowed for collegial conversations and relationship building on campus, causing individuals or units to feel a sense of urgency without reflection. To establish deadlines, we recommend beginning by working with colleagues in Catalog and Curriculum departments to first identify deadlines for adding a major

curriculum requirement (on most campuses, these deadlines are a year or more before an implementation date). Then, we recommend a one-year consultation period to formulate and approve an Ethnic Studies policy, followed by another one-year period to identify Ethnic Studies courses, for a total of three years from beginning to implementation.

Due to AB-1460, CSU-Chico performed three processes at the same time, oftentimes only having a few weeks to make important decisions, which led to frustration from all quarters and unnecessary and avoidable cultural taxation. Despite our best efforts to be inclusive and transparent, there were numerous accusations of exclusion and lack of transparency which emerged due to the abbreviated timeline and not by design. Without proscribing, however, a limit to the consultation process, an Ethnic Studies implementation period can prolong indefinitely. We now have an Ethnic Studies requirement at CSU, Chico because of a very clear and firm deadline.

Secondly, recognize the power of shared governance and faculty control over curriculum on your campus. On campuses with long-fought traditions of shared governance, it is important to realize that the *means* of deliberation, consultation, and transparency will more often than not take precedence over the *ends* of antiracism (in this case an Ethnic Studies requirement). Campuses such as these, like ours, must understand that cultural taxation will be the highest, because shared governance advocates will expect that deliberation, consultation, and transparency takes place despite shorter-than-normal implementation timelines. It is important to note, also, that critics of the Ethnic Studies requirement will rarely attack the merits of the requirement directly, but will always point out if a campus precedent, procedure, or point of order is sidelined or abbreviated to achieve the goal of an Ethnic Studies requirement. In campuses without strong traditions of shared governance, it should go without saying that Ethnic

Studies faculty should take the lead. On our campus, the Academic Senate created an ad hoc subcommittee to implement the Ethnic Studies requirement, with self-nominees chosen by the Chairs of the Ethnic Studies Department, Senate Curriculum Committee, and General Education Committee. On campuses with more established Ethnic Studies departments, it makes sense to let these departments and faculty take a leading role, but on campuses without a tradition of shared governance *or* an Ethnic Studies department, it is particularly important that the administration create a new committee: either way, the role should be formalized with an official campus memo that gives faculty the standing and legitimacy necessary to make decisions and implement deadlines.

Finally, campuses that commit to a lengthy deliberative process of creating an Ethnic Studies requirement should not stop there: if the Ethnic Studies requirement is added to an existing Curriculum or General Education policy then seize the moment to make any other desired antiracist changes to campus curriculum policies. In 2020, in response to Black Lives Matter, CSU, Chico's Academic Senate approved a resolution in "Condemnation of Violence Against Black People and Commitment to Antiracist Policies and Practices," which envisioned the creation of a "sub-committee to create rubrics for curricular assessment in courses campus-wide that examine the extent to which racially just classroom practices, antiracist pedagogies, and the dismantling of anti-Black practices are utilized, with the overall intention of contributing toward cultivating a healthy racial campus climate that result in equitable educational experiences and/or outcomes for Black students" (California State University Chico Academic Senate, 2020a, p. 3-4). As illustrated in this article, CSU, Chico's General Education Committee was already engaged in consultation and transparency to support the implementation of an Ethnic Studies requirement, and the committee decided to piggyback on this consultation - including

consultation with the Black Faculty and Staff Association - to seize the moment and make the anti-Black pedagogy dream a policy reality. In the end, after fierce debate in the Academic Senate, CSU, Chico revised its GE policy to implement Ethnic Studies *and* a new course review process where all GE courses will be reviewed for evidence of racially just classroom practices. If your campus has antiracist plans or initiatives that have stalled, then consider using the consultation process for an Ethnic Studies requirement to define, redefine, and achieve these goals. At CSU, Chico, the creation and implementation of an Ethnic Studies policy has been a very difficult and frustrating process, but by overcoming systemic obstacles students in Fall 2021 will take vital courses that provide students with the “knowledge and skills that will help them comprehend the diversity and social justice history of the United States” (Assembly Bill No. 1460, 2020).

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Hawaii International Conference on Education 2022

Title: Articulated Assessment Transfer Tasks for World Language Intercultural Competence

Language Education

Workshop

Articulation is intentional curriculum and assessment design between levels. This workshop guides World Language educators on performance task design for a common context in the three modes of communication at any level of learner engagement. These tasks solve problems and create products to engage critical thinking for college, community, work and world readiness. Participants have the opportunity to join the free online DesignSpace to design and collaborate with colleagues on exemplars for learners K-16.

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Abstract

Articulated Assessment Transfer Tasks for World Language Intercultural Competence

How do we design performance assessment tasks for transferable goals and let the learner make new meaning relevant to community, career, and life? World Language Education curricula is typically organized by coverage of grammar rather than focusing on performance within real-world intercultural contexts. Even in light of efforts to sequence by proficiency goals, there is a dearth of design research and materials for language departments and educators at all levels of instruction. Fixed and static textbook tasks cannot prepare the learner for the inevitable unpredictability and flexibility necessary for authentic communication. This workshop describes research and practice from the Queens College, CUNY World Language teacher education program and guides educators on vertically articulated curriculum and assessment design by unfolding intercultural perspectives that reprise over the span of a spiraled program, from literature to language courses between levels, schools, and university.

What do you want the learner to remember about the culture(s) long after they have left your course and program? How do cultural perspectives and practices inform a chosen theme and big idea? In this framework, intercultural perspectives enter, exit, and reprise over the course of a program. These are recursive themes that frame the program and continue along the life-span of the learner. Instructors examine cultural perspectives, attitudes, patterns, notions, relationships and ideas, concepts all learners will remember and revisit. These appear and resurface often throughout the cultural history of a people and shape art, literature, film, thought, milestone events and the collective response.

Two Enduring Understandings and Essential Questions to guide designers are:

Designers will understand that articulated language programs depend on curriculum design for communicative performance in meaningful cultural contexts.

Designers will understand that articulated language programs are designed backward from novel performance assessments that transfer knowledge and skills to varied authentic situations present in the culture and relevant to life and work.

How do intercultural perspectives and contexts play a role in uncovering curricular themes for our program?

What should the learner understand and be able to do by the end of your program?

How will the learner demonstrate what they can do with the language(s) within a cultural context?

What does performance evidence for transfer look like?

Using universal themes as foundation for articulation, we explain the rationale and design process for sustained inquiry on which dynamic summative and formative assessments reside. Learners engage language in a range of diverse, purposeful contexts and learn to expect variation instead of predictable routine. These are performance assessments for transfer, moving the learner to solve problems and create products for novel situations with value beyond the classroom, considering needs beyond the self. Transfer tasks enable critical thinking skills to widen the cultural lens, teach flexibility, and tolerate ambiguity. Wherever we live and work, these skills will help learners manage inevitable changes, challenges, and new projects to become self-directed, autonomous language learners for life. Workshop participants explore these content-rich tasks using authentic materials with the modes of communication across three levels of learner engagement for vertical articulation. Participants are invited to join the *DesignSpace*, <https://queenscollege.classroad.org> a portal of online tools with feedback to design and publish exemplars suitable for K-16 World Language articulation.

The Role of Collaboration and Scaffolding in Course Redesign

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Designing courses that engage online learners to achieve the highest level of mastery of course learning outcomes is at the forefront of online course development at The University of Arizona Global Campus. In Spring 2021, full-time faculty in the Department of Education and Liberal Arts had the opportunity to redesign one of their core courses, ECD315: Curriculum Planning and Design for Early Learners. In the online classroom, the presentation of learning activities, guidance, and assignments holds a teaching role. Just as on-ground teachers must reflect on their teaching and student learning, online teachers must reflect upon course content. “Reflective teaching is a process where teachers think over their teaching practices, analyze how something was taught and how the practice might be improved or changed for better learning outcomes” (Mathew et al., 2017, p. 127). This course redesign sought to use reflection to strengthen the course material.

Additionally, during the redesign, the full-time faculty connected with associate faculty familiar with the course to seek their feedback. Adjunct faculty members are valuable members of higher education, and universities should provide them with “opportunities to participate in decision-making” and providing input in curriculum and course design (Ridge & Ritt, 2017, p. 58). Both the reflection and collaboration provided the opportunity for a more meaningful and scaffolded course to support student success.

The term scaffolding comes from Vygotsky’s (1978) zone of proximal development, which is often referred to as the ZPD. He defined this as “the distance between the actual development levels as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (p. 86). In this course, scaffolding is the guidance presented to the learners to help them move to the next level of development. Once they reach the next level, the learner can stand on his or her own without the scaffolds.

Since this was the redevelopment of an existing course, the subject matter experts utilized existing data from the class to inform their approach. This data allowed the subject matter experts to see where the course needed more scaffolded support for students to master the course learning outcomes.

Throughout this presentation, we explored this process and highlighted specific examples of how scaffolding and collaboration allowed for redeveloping a course that would increase student mastery of learning outcomes. Similarly, the co-construction of content by full-time and adjunct instructors alike sought to deepen the partnership between these groups while increasing the self-efficacy and sense of connection to the university for the participating adjunct instructors. Through intentional collaboration, adjunct faculty partner as key stakeholders (Ridge & Ritt, 2017).

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SELF-REGULATION AND ACADEMIC MOTIVATION AS PREDICTORS OF
ACADEMIC ACHIEVEMENT OF UNDERGRADUATE STUDENTS IN AN ONLINE
LEARNING ENVIRONMENT AT ANDREWS UNIVERSITY

In Partial Fulfillment
Of the Requirements for the Course
EDRM 880 Dissertation Proposal Development

by
Sonia Almwad
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CHAPTER ONE

INTRODUCTION

Background

Online learning is a mode of education where students attend their classes virtually on digital platforms. Online learning has become one of the most preferred types of distance learning due to the rapid advancement of technology and recently the Covid-19 pandemic. Approximately one and half billion students across the world were engaged in remote learning in 2020 after schools were shut down due to the Covid-19 pandemic (UNESCO, 2020). Such learning was only possible among some students with the ability to access laptops, smartphones, tablets, desktops, and the internet. Some of the instructors who have never used online teaching discovered new teaching approaches and strategies that could help address arising challenges (Bozkurt et al., 2020). After the pandemic eased, some of the students had a chance to return to their learning institutions to continue with in-person learning. However, such learning may not be normal until later in the decade. In this view, faculty are doing all they can to understand online learning, how to promote student engagement, and how to ensure it produces an outstanding learning experience for all students. At first, many faculties decided to undertake online teaching similar to the normal classroom pedagogy. In the process, they discovered this strategy was impractical since some students could miss classes due to unavoidable life

challenges, including poverty that denies them the opportunity to access technology, the internet, and appropriate pedagogical tools (Huang, 2020).

While engaging in online pedagogy, many faculties discovered that classroom instruction has not been proven to be more beneficial than other learning alternatives (Bernard et al., 2018). As such, they began experimenting with personal small group work, short video recording, personal challenges, and project-based learning. They started exploring teaching, as well as the science and art of teaching based on online design. Help was sought from colleagues with previous online teaching experience to identify strategies and tactics that worked best in enhancing student outcomes. Many of them got inspiration from creative music, arts, and zoom rehearsals that brought dramatic life changes. Open educational sources, simulations, games, materials, and online labs were discovered. These all helped increase student engagement in online platforms (Adnan & Anwar, 2020).

Changes in the learning and teaching of university students are attributed to the sudden introduction of online learning due to the outbreak of Covid-19, as well as the emergence of new technologies that support access to undergraduate education (Dhawan, 2020). Many different learning centers have started exploring the consequences of such developments to ensure that programs and courses are aligned appropriately beyond the pandemic. Looking deeply into the learning content and its implications to the entire student population, several online learning developments, along with their impact on how people understand instruction, have been highlighted. Also, their application in college and university learning has been underlined (Ali, 2020). People are exploring such areas to determine how learning is being changed in the era of advancing technology. The main

question to ponder is whether there is success in online learning. Before Covid-19 changes in student's expectations, society, and technology had already motivated college and university faculty across the world to rethink pedagogy and methods of providing instruction. For instance, in Saudi Arabia, Covid-19 forced them to change their education system to online learning for the first time.

Currently, many universities and colleges are seeing online courses as a strategic investment opportunity for increasing accessibility and flexible learning paths for their target students. The majority of universities and colleges in most developed countries, including the United States (U.S.) and Canada among others, offer online programs and courses (Adnan & Anwar, 2020). Also, universities and schools in Saudi Arabia have embarked on online courses because of the rising demand as well as the Covid-19 pandemic (Naveed et al., 2017). Since the Covid-19 pandemic is not set to end soon and many other pandemics may emerge, it is important to utilize the available resources to build online learning materials for students across different academic fields. Some factors like self-regulation, academic motivation, and academic achievement of undergraduate students in an online learning environment.

Statement of the Problem

Online learning has become an increasingly popular option for schools and students during the pandemic, especially due to the convenience that online learning affords students from different areas. As a result of increasing online course enrollment, universities and colleges have been enticed to offer more online courses (Ali, 2020). Currently, the world is experiencing the Covid-19 pandemic which has forced educational institutions to rethink their pedagogical methods and embrace online

learning. Universities such as Andrews University have been forced to adapt and implement the online learning approach. During this state of emergency, Andrews University has been forced to adopt varying options of learning including e-learning and mobile learning to meet student needs. Online learning is not a new option for Andrews University, but the Covid-19 pandemic has increased the need for online learning in this university as it has done for other educational institutions (Huang, 2020; Soni, 2020; Bozkurt et al., 2020). School closure due to the Covid-19 virus has negative consequences among university students, such as interrupted learning and reduced opportunities for growth and development for all students. Therefore, online learning, if implemented effectively at Andrews University, can address this problem if students have access to fast internet and online learning systems. Abbasi et al. (2020) pointed out that e-learning tools play an important role in the learning process during the Covid-19 pandemic. E-learning tools can help educators at Andrews University manage, monitor, plan, and deliver instructions. Moreover, online learning aims to assist teachers at the university to facilitate student learning when the physical classroom is not allowed. Generally, most online learning systems provide continuous learning when students are not allowed to attend schools.

However, the usage and provision of e-learning systems and materials is a challenge for Andrews University during the current Covid-19 pandemic. E-learning systems as sources of information are easy to use, cost-effective, and interactive (Huang, 2020). For example, Learning Hub constitutes fantastic features that can offer students at Andrews University motivation when learning online. The use of Learning Hub during the Covid-19 pandemic is more practical since students are engaged in different learning

activities, as well as texting teachers using their mobile devices or laptops from the comfort of their homes. Also, learning content can be retrieved easily into the learning devices since they can be connected to the internet via local networks. According to Ülker and Yılmaz (2016), one method of online learning is the utilization of the learning management system (LMS). E-learning involves the organization, management, and provision of online learning activities including course descriptions, examinations, assessments, student enrollment, and many others (Haghshenas, 2019). Almaiah et al. (2020) argue that change from traditional to online learning will allow students to access a wide range of technologies that links them to teachers and learning materials to improve their learning outcomes. The success of online learning depends on many student-related factors such as acceptance, willingness, motivation, and many others that determine their usage (Almaiah et al., 2019; Almaiah et al., 2020). When there is a lack of adoption of online systems, students cannot realize the benefits that come with improving their performance. Overall, Andrews University can waste a lot of money and the system becomes unsuccessful in meeting its goals. Lack of motivation and low level of self-regulation decrease students' academic outcome. Research on online learning is still at infant stages and mostly, students' views have not been sought fully (Almaiah et al., 2020). While online learning has many positives, it does present a problem when it comes to academic success. Some of Andrews over 3,000 students can opt not to attend, or pretend to attend, online lessons when not actually present. Online lessons also present a challenge when it comes to such things as assignments, tests and practical aspects of a course. Moreover, motivation and self-regulation are some of the key aspects necessary for online learning to be a success, given that students are subject to minimal supervision

or guidance from teachers when not in a classroom environment. It is therefore important to understand to what extent self-regulation and motivation impact academic success in an online learning environment at Andrews University, in order to better develop strategies to improve motivation and enhance self-regulation and address the shortcomings they present to online learning.

Purpose of the Study

The purpose of this study is to determine whether self-regulation and academic motivation are related to undergraduate student academic achievement in an online learning environment at Andrews University.

Specifically, the study seeks:

1. To determine the levels of self-regulation of undergraduate students in an online learning environment at Andrews University.
2. To examine how the level of self-regulation and academic motivation predict the academic achievement of undergraduate students in an online learning environment at Andrews University.
3. To ascertain the gender differences between self-regulation and academic motivation in an online learning environment at Andrews University.

Research Questions

Different research questions were developed to accomplish the aim of this study. This study's research questions focused more on determining the associations between students' self-regulation, academic motivation, and academic achievement in an online learning environment at Andrews University. This study also aimed to examine the level

and to ascertain the gender differences of students' self-regulation, academic motivation, and academic achievement in an online learning environment at Andrews University.

1. What are the levels of self-regulation of undergraduate students in an online learning environment at Andrews university?

2. To what extent can self-regulation and academic motivation predict the academic achievement of undergraduate students in an online learning environment at Andrews university?

3. Are there gender differences between self-regulation and academic motivation in an online learning environment at Andrews University?

Conceptual Framework

This research study aims to determine whether students' self-regulation and academic motivation are related to undergraduate student academic achievement in an online learning environment. This implies that the main variables in this research were student-related factors including self-regulation, academic motivation, and academic achievement, which was measured using student grade point average (GPA). Previous research studies were examined to identify scholars' findings regarding the relationships between student academic achievement and their self-regulation and academic motivation. The conceptual framework focuses on two theories to support the dependent and independent variables of this study. Zimmerman's cyclical theory was the first theory, which was based on the Social Cognitive Theory (SCT) by Albert Bandura (Panadero, 2017). Self-Determination Theory (SDT) (Deci & Ryan, 1985) was the second, which focused on some types of academic motivation.

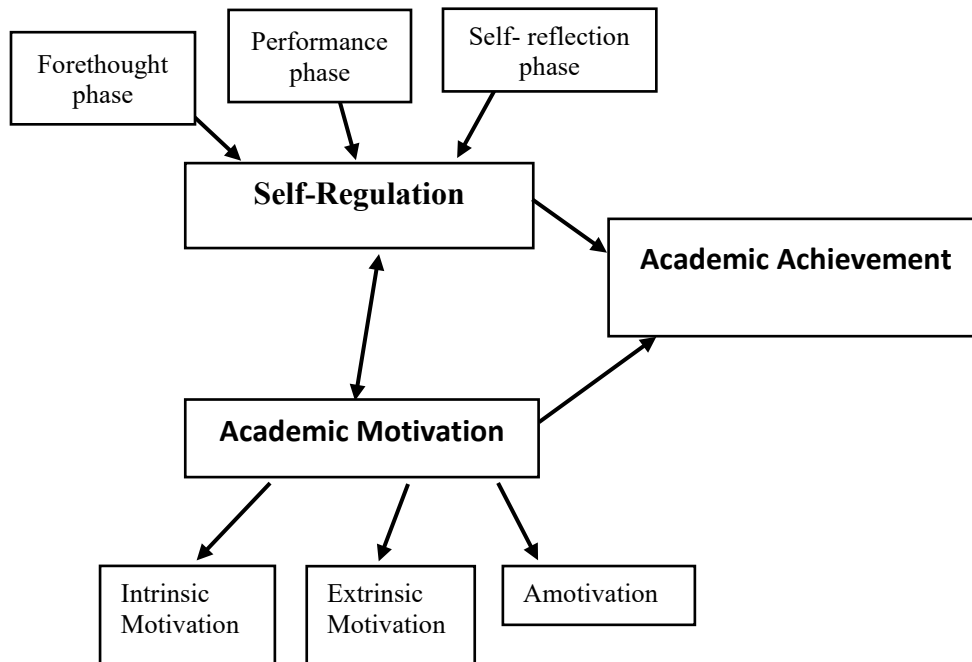


Figure 1: the associations between self-regulation, academic motivation, and academic achievement.

Self-regulation and Academic Achievement in Online Learning

To understand self-regulation, Zimmerman’s cyclical theory is analyzed. The model is organized into three phases including self-reflection, forethought, and performance. In the self-reflection phase, learners are required to assess their performance of given tasks and make attributions about their success or failure. In the forethought phase, learners are supposed to evaluate tasks, set goals and objectives, and set strategies to help in achieving those goals. Finally, in the performance phase, learners are required to execute given tasks while monitoring their progress and use of different self-control strategies to keep themselves engaged to finish their tasks (Panadero, 2017). Learners are supposed to have specific attributes for them to succeed in their learning process. For effective online learning, students must be self-regulated. In online learning,

students mostly interact with their teachers and in some situations, teachers may not take an active role in the learning process. In this regard, students become isolated during their learning process (Sharma et al., 2007). As such, online learners must depend on personal capacities and abilities to influence their learning process.

Self-Regulation Strategies

Self-Regulated Learning Strategies (SRLS) to use during the performance phase, which was highlighted in Zimmerman's cyclical theory, include help-seeking, time management, and environmental management. Also, the forethought phase involves self-motivation beliefs including self-efficacy. Finally, the self-reflection phase involves strategies such as self-satisfaction (Panadero, 2017). Such strategies will be measured using a 5-point Likert-type of scale with values ranging from (1) strongly disagree to (5) strongly agree. Experience with technology is an essential component of successful online learning. According to de Fátima Goulão (2014), self-efficacy for course content and self-efficacy for technological skills predict the performance of learners. Internet self-efficacy has been noted to be an important predictor of online learning success across the world. Self-regulated learners have positive beliefs regarding their ability to use technology effectively, thus influencing the commitment to continuous learning. As such, there is an improvement in their overall performance outcomes. Ensuring learners are competent and comfortable working with technological systems in their study experience is vital in online learning to improve their academic performance.

Performance Phase

The performance phase highlighted in Zimmerman's cyclical theory includes help-seeking, time management, and environmental management. The performance phase

involves measuring actual metrics and performance of students when it comes to help-seeking, time management, and environmental management, and how well they perform in each. The performance also looks at how students' performance in these three metrics impacts their overall performance in an online learning setting.

Time Management

Time management is another important self-regulatory factor in the success of learners taking online studies. Broadbent and Poon (2015) pointed out that students require a lot of time interacting with an online-based course than when engaging with a face-to-face course. Students with difficulties managing time in online courses are more likely to drop or score poorly. Efficient use of time when doing online courses offers students a chance to perform better. According to Cazan (2014), self-regulated learners manage time efficiently because they may be aware of the deadlines and consequences of lateness. They prioritize learning activities and complete them in time. Such students perform better academically.

Environmental Management

Self-regulated students proactively manage their study environment. All of them are sensitive to their study environment and many at times alter it to ensure they succeed. Since online learning does not involve a controlled classroom approach, students are supposed to structure their study context on their own, whether at home or in other locations. Cazan (2014) found out that strategies for structuring one's social environment contribute to the success of the learners. Online learners have full responsibility for their study since they access course content using computers or smartphones in their comfort zones. When working at home, they decide where the computers will be located to ensure

they optimize their time in learning. They also have an opportunity to look for the necessary software for accessing course materials. Those who fail to do this are more likely to perform poorly in their online courses. While online learners embrace some of the above behaviors, Barnard et al. (2008) said that they perform better in their academics. Since self-regulated learners can manage their study environment effectively, this implies that they gain higher academic achievements.

Managing Learning Support System

Management of learning assistance is also important in the success of online learning. Self-regulated learners are aware of other people's fundamental role in the learning process. They often seek academic assistance anywhere when faced with problems (Kirmizi, 2015). Help-seeking behaviors in online learning settings have been noted to be important. Learners can share information with fellow students and teachers to enhance their learning process. The majority of them are proactive in using bulletin boards, technology, email, and chatrooms for assistance in their learning process. In the end, such students are more likely to perform better. For effective utilization of instructional technology systems, learners are supposed to be skilled. Students are required to have specific skills to use different learning technologies that allow interaction between peers and teachers. Self-regulated learners know when and how to seek help in their learning process (Broadbent & Poon, 2015). In this view, they optimize their learning process to achieve their expected satisfaction and outcomes.

In general, self-efficacy, help-seeking, time management, and environmental management as discussed above are key attributes of self-regulatory learners in an online learning set-up (Sharma et al., 2007). From the discussion, it is clear that when self-

regulated learners have high internet self-efficacy, they know how and when to seek help, as well as manage their study environment and time effectively. Therefore, such students are more likely to perform better.

Forethought Phase

Involves a look at self-motivation beliefs, such as a student's confidence in performing well or a positive attitude towards online learning. The forethought phase looks at how students' premeditation and perception or attitudes towards online learning can impact actual academic performance.

Self-motivation beliefs

Self-motivating beliefs are important when it comes to achieving success in online learning. Self-motivating beliefs increase the desire to work harder and achieve success in online learning among students. Students with a high level of self-motivation belief are more self-driven and likely to work towards success with minimal supervision or direction (Hartnett, 2016). Higher levels of self-motivating beliefs such as the desire to get a higher score, or the belief they can perform well on a given task will push students to attend online lessons of their own volition and inspire better performance in online learning.

Self-efficacy

Self-efficacy refers to the belief students have in their own abilities, skills or capabilities to achieve success. A higher level of self-efficacy or belief that they possess the capabilities to achieve success is likely to inspire better performance in online learning (Fátima Goulão). Students with a high level of self-efficacy will be more confident in approaching challenges when it comes to online learning and striving for

success. With greater confidence in their abilities, they will have less challenges in using online learning tools, and engaging in tasks or tests online with greater self-regulation as compared to those with lower self-efficacy who may instead look to avoid challenging situations and engage less in an online learning setting.

Self-Reflection Phase

The self-reflection phase involves strategies such as self-satisfaction. This phase looks at the impact of self-efficacy on perceptions following online learning sessions and the changes in attitude towards online learning.

Self-satisfaction

A greater sense of satisfaction with online learning enhances academic success in online learning. Self-satisfaction with the online process and their own achievements in online learning mean students will be more comfortable engaging in online learning and have greater confidence in succeeding (Panadero, 2017). Such satisfaction as achieving the results they desired in online learning or engaging in a lesson that leaves them satisfied will inspire students to engage more in online learning without the need for supervision or direction, resulting in better self-regulation.

Academic Motivation and Academic Achievement in Online Learning

Motivation has been identified as one of the factors that determine students' active participation in online learning activities. When students become active participators in online learning activities, they have been found to attain higher academic achievements. According to Hartnett (2012), students reporting higher motivation in online learning demonstrate more teamwork with peers to seek understanding and meaning of their learning process. The Self-Determination Theory can help understand

student motivation in an online learning setup. Motivation based on the Self-Determination context denotes that makes us act in a given way. Based on the theory, three core needs including competence, relatedness, and autonomy drive people towards growth. Autonomy denotes the need to be free from external influence, while achievement is the need to feel skilled. Relatedness represents the need to feel engaged with others.

Types of Motivation

Three types of motivation, intrinsic, extrinsic, and amotivation exist. The above three needs have been noted to promote intrinsic motivation that initiates an inherently satisfying or engaging behavior. Extrinsic motivation on the other hand is associated with external behaviors pushing people to do things to get rewards (Chen & Jang, 2010). The theory outlines that when students feel that their basic needs are well-addressed, they tend to perceive their choices and actions are intrinsically motivated. In such situations, learners often turn their attention to various learning activities that are important in their learning process. For instance, some students may read books online suggested by the instructor while others might listen to teacher instructions. If one of the basic needs is not met, learners feel pressured and they do all they can to ensure needs are met and thus may ignore interesting and important learning activities. Students will be asked to determine their extent of motivation in online learning.

Intrinsic

Intrinsic motivation is an inborn motivation devoid of any external influences. Intrinsic motivation results from a person's own desire or drives to achieve success or accomplish something regardless of the external situation (Chen & Jang, 2010). For

students, intrinsic motivation is akin to self-motivation, which inspires them to strive for academic success even in an online learning situation. Intrinsic success is a major factor contributing to a student's self-regulating behavior online as they will strive to succeed regardless of external influences or situations.

Extrinsic

Extrinsic motivation is motivation resulting from external factors or influences (Chen & Jang, 2010). Such motivation can result from punishment for achieving poor results or rewards when a student succeeds. Such external factors generate motivation for the student to work better in online lessons so as to avoid punishment or gain more results. Students will be more driven to attend online lessons with minimal supervision, have a higher level of self-regulation and strive for success when extrinsic motivation is present.

Amotivation

Amotivation refers to the reduction in the desire for motivation to achieve a goal (Chen & Jang, 2010). Amotivation has a negative impact on success in online learning as students are less inspired to achieve success. The lower desire for success means they will be less likely to attend online lessons unless supervised. Amotivation, therefore, reduces the level of self-regulation for students as they are not intrinsically driven to achieve success.

Factors that Motivate Students

Some of the factors that intrinsically motivate students to study online include self-efficacy, task learning value, simulation of the learning environment, active learning strategies, and performance goals. Student motivation based on these factors will be

measured using the Academic Motivation Scale designed using a five-point Likert scale (strongly agree, agree, neutral, disagree, or strongly disagree). Previous research studies have indicated that self-efficacy plays both negative and positive roles in student intrinsic motivation and academic performance. With higher self-efficacy, students are motivated to set higher goals and increase effort to attain academic success. However, perceived low self-efficacy in some students can lead to poor time management whereby they allot fewer resources for finishing learned tasks and less time studying. In the end, there is minimal academic performance (de Fátima Goulão, 2014; Broadbent & Poon, 2015; Cazan, 2014). The achievement goal also motivates students to satisfy their curiosity. Ultimately, student academic performance is improved. Lathrop (2011) argues that students setting learning goals and objectives are intrinsically motivated. They show heightened interest in course content. Generally, with performance or achievement goal orientation, students attain better grades. Student motivation often increases the desire to engage in active learning strategies that enhance their final academic achievement. When students are motivated during their online courses, they are more likely to score higher grades. Nauzeer and Jaunky (2019) found out that motivation has a direct influence on the academic performance of students.

General Method

This research study will use the quantitative research design, and data will be collected using self-reported questionnaires to achieve the aim of the study, seeking to determine whether self-regulation and academic motivation are related to undergraduate student academic achievement in an online learning environment. The method was selected so that it could be easy to determine the content validity of the developed

questionnaire. Therefore, the current research study will use an online survey questionnaire instrument to gather views of undergraduate students at Andrews University. The population for this research constituted undergraduate students taking different online courses from Andrews University. This population comprised all groups of students ranging from first to fourth years. The specific sample selected from the population entailed 150 students. The Statistical Package for Social Science (SPSS) software will be used for data analysis.

The Rationale for the Study

Student academic achievement has been the norm of all educational institutions (Mulder et al., 2009; Bergsmann et al., 2015). Each institution is working hard to ensure student academic achievement is developed and fostered. Different strategies—including making goal-based decisions on creation and curation, personalizing pace with asynchronous learning, increasing student agency, reimagining space and time, and prioritizing equity and relationships—have been applied to ensure that online learning supports student academic achievement.

Ali, Haider, Munir, Khan, and Ahmed (2013) stated that some old research studies have determined some factors that affect the academic performance of students in the different learning centers. Factors like class attendance, age, learning styles, gender, class size, entry qualifications, and family income affected academic success which is academic achievement. Institutions seek to transfer skills as learning goals. The curriculum is tailored towards these skills. Some of the core skills that institutions seek to transfer to students include collaboration, empathy, communication, creativity and innovation, use of digital tools, organization of time and tasks, and taking responsibility

for individual and group learning among many others. Generally, the learning approach aims to reflect how individuals learn, work, and prosper in the world (Hudson, 2020). Since online learning is advancing at a high rate and many faculties are working hard to transfer learning to online platforms, it was important to examine how student self-regulation, academic motivation, and academic achievement are affected in an online learning environment.

Significance of the Study

The current Covid-19 pandemic has forced many universities to adopt online learning as a way to address the laid health measures. Online learning is a way to help students continue with their education to become ready for future job opportunities in order to address the growing globalization and advancing technology demand for educated and skilled workers (Dunnigan, 2018). Looking at the above-described aspects, it was important to conduct this research to see or test the correlates of students' academic achievement with their self-regulation and academic motivation in an online learning environment. Research in this field is minimal since it is in the initial stages. Also, few studies have been conducted to examine the relationship between different student factors and student outcomes. This study aimed to determine whether self-regulation and academic motivation as student-related factors are associated with undergraduate student academic achievement in an online learning environment.

Limitations

Several limitations were considered for this research study while interpreting the findings. First, the self-report questionnaire designed to collect undergraduate student

views and opinions was based on self-reported variables in which students would give views and opinions depending on what they believe is true regarding the social phenomenon. In this scenario, Demetriou et al. (2014) say that participant responses could be influenced by their desire to offer answers that would favor the researcher. Secondly, the use of the snowballing sampling technique was likely to introduce bias in the sample population of this research study (Etikan et al., 2016). Third, another research bias could be introduced since students self-select to do online courses. The selected sample population could be potentially biased in their responses. Students taking online courses have high academic motivation and self-regulation, which may mean they are determined to succeed. In this view, the responses will be inclined towards the researcher's study purpose. Fourth, this research study involved students from Andrews University. Due to the highly contextualized nature of the online learning setting, findings from this research study would not be generalized to other educational settings. Fifth and finally, due to time and financial constraints experienced by the researcher, there was limited ability to recruit a large sample population to ensure findings were valid and more reliable in justifying hypotheses.

Delimitations

The proposed research study involved various boundaries that help in ensuring that the researcher remains within the scope of research. The first one involves the variables of the study. The first variable which is a dependent variable involved two factors academic motivation and self-regulation and the independent variable was the academic achievement of students at the tertiary level. In implication, the researcher's scope was limited to these two extremes and their relationships. Any other factor

contributing to the academic achievement of college students was outside the scope not be considered. In this regard, the research method was directed to the collection of only quantitative data such as student scores. In implication, no consideration to qualitative data during the data collection.

Also, the research sample was set to involve only undergraduate students to study perspectives that have not been fully investigated. Postgraduate students and other scholars who are not undergraduate students were not be sampled. Finally, the selection of undergraduate students was limited to Andrews University only. No student from other institutions was involved in the study. The aforementioned were the limitations that were considered during the study.

Definitions of Terms

Online learning in this research activity, online learning was defined as education taking place via the internet (Adnan & Anwar, 2020; Dhawan, 2020). Typically, online learning does not involve face-to-face meetings.

E-learning for this paper, e-learning denotes learning conveyed via the internet (Mellanby, 2008; Abbasi et al., 2020). E-learning was used interchangeably with online learning in this paper.

Self-regulation in this paper, self-regulation was regarded as one's ability to manage emotions, behaviors, and thoughts to meet given goals (Sharma et al., 2007). This is an important aspect of the learning process.

Academic Motivation in this study, academic motivation denotes a desire to fulfill one's academic goals or achieve academic success (Department of Education, 2016). Students with a desire for academic success are more motivated to learn.

Academic achievement in this study, academic achievement is the present level of the student's learning (Department of Education, 2016), or the percentage of students whose learning is currently meeting or exceeding their grade-level standards.

Self-efficacy the belief in one's abilities is what was referred to as self-efficacy in this research study (Sharma et al., 2007; Dunnigan, 2018). When students believe in themselves and their abilities, they get to enhance their learning process.

Help-seeking for this study, help-seeking was defined as a way of seeking support from peers and teachers to address learning problems (Sharma et al., 2007). When students interact with teachers and peers, they address learning problems they are unable to handle on their own.

Time management for this research study, time management was defined as the appropriate management of study time (Dunnigan, 2018). Better time management allows students to accomplish tasks in time and thus do well in final assessments.

Environmental management in this research study, environmental management was regarded as the process of handling the study environment appropriately (Sharma et al., 2007). Students are supposed to manage their study environment appropriately to minimize distractions.

Motivation in this study, motivation is a belief in one's capacity to perform learning tasks and achieve goals successfully (Dunnigan, 2018). Motivated students often achieve better learning outcomes.

Performance academic performance involves the assessment of the progress of students in different subjects by their teachers. Teachers and administrators use

graduation rates, classroom performance, and the scores of standardized tests to assess the progress of their learners (Ansell, 2011).

Self-reflection refers to the self-analysis of one's actions and behavior. Self-reflection allows students to identify their behavior traits and improve on them (Dunnigan, 2018).

Forethought in this study is the future outlook that students have, and their tendency to plan for the future. Forethought allows students to prepare for the future and modify their actions in readiness for future events. Forethought is a critical component of learning behavior according to Social-Cognitive Theory (Pajares (2002).

Intrinsic Motivation refers to the internal motivation students have regardless of external factors (Chen & Jang, 2010).

Extrinsic Motivation refers to the motivation students have resulting from external or environmental influences (Chen & Jang, 2010).

Amotivation refers to the reduction in the drive among students to engage in online classes, or aim for academic success (Chen & Jang, 2010).

Undergraduate refers to students who are taking their first degree or have just begun their tertiary education at Andrews University.

Organization of the Study

The dissertation is divided into five chapters. After chapter one, previous research associated with online learning and factors affecting student performance is reviewed in chapter two. The research methodology applied in ensuring relevant data was collected, analyzed, and utilized in understanding whether self-regulation and academic motivation are related to undergraduate student academic achievement in an online learning

environment is outlined and described in chapter three. After data collection and analysis, findings are presented in chapter four. Finally, a summary of the findings, a discussion of the findings relative to previous literature, and their associated implications are presented in chapter five.

CHAPTER TWO

LITERATURE REVIEW

Purpose of the Literature Review

The literature review section was aimed at examining topics related to the current research area. The literature review is a means of providing a better understanding of study variables using relevant research. Data sources included in the literature are peer-reviewed journal articles, scholarly articles, and websites ranging from 2008 to 2021. These data sources were found in different online library databases such as Google Scholar, ProQuest, Science Direct, and JSTOR. This chapter first examined the evolution of online learning. Also, a summary of, self-regulation, academic motivation, and academic achievement and their association to undergraduate students is given. Then previous research studies documenting the relationship between self-regulation, academic motivation, and academic achievement are evaluated. The chapter ends with a chapter summary that highlights the literature gaps that guided the collection of data to accomplish the aim of this research study.

Evolution of Online Learning

Technology is an important aspect of online learning because it links separated instructors and learners using numerous technological platforms such as email, print, audiovisual tools, and many others. Online learning can be traced back to the

development of distance education. According to Gerasimova et al. (2018), distance learning development has largely depended on technological innovations such as correspondence, computers, and telecommunications to achieve its goal. Such tools offered opportunities to provide two-way communication between students themselves or between students and teachers. Correspondence learning involved print-based course materials that were shared using postal services. This distance learning method was used as a way of educating people across the U.S. at low costs (Pittman, 2013). Postal services were disadvantageous because there was a delayed response. In this regard, students were supposed to make serious efforts in completing course requirements.

Telecommunications on the other hand involved radio, telephone, and wire electronic communication. Such tools offered students and teachers a two-way communication platform—however, system scalability to allow access to many students was limited, making it difficult for teachers to meet a unified educational goal. Furthermore, there were time constraints since instructors and learners were required to interact within specified times (Dunnigan, 2018). The introduction of personal computers revolutionized the learning process. Sharma (2017) argues that computers became the new means of interaction between teachers and students. The autonomy of students progressed further with the advance of computers, maximizing their interactions with teachers. With computer-assisted learning, there was an increased chance of mediating machine and human interactions.

Combining the social learning theory and computer-assisted learning, the cooperative principle was developed. The principle required the listener and speaker to strike an implicit agreement to ensure their communication was relevant, accurate,

concise, and informative. Within computer-assisted learning, the speaker is the medium of conveying messages to be delivered by the computer to the target audience. Mayer (2014) pointed out that one can activate a social response in computer-assisted learning by choosing, consolidating, and integrating relevant content. Also, this technology improves student-student interactions to address emerging learning problems. Even though computer-assisted learning was gaining popularity in the world, researchers did not accept it due to various reasons. For instance, there were deep concerns about threats and opportunities associated with stand-alone computer systems—however, technological and political trends linked to computer-assisted learning showed increased acceptance among policymakers. An example of this is how the government increased its investment in education and autonomous learning. Bianchi et al. (2020) further noted that there was an increase in demand for education as a means of training people to get employed in the future and not university-level related workability. However, distance learning in the current era has advanced further and new means of achieving instructional goals, via computers connected to the internet, have moved distance education beyond standalone systems.

When the National Research Council set parameters for internet privatization in 1994, the modern World Wide Web and internet technology emerged thereby advancing distance learning (Dunnigan, 2018). Education centers and private businesses commenced the development of educational platforms that were accessible by many students from diverse settings. Public higher learning institutions took advantage of Sloan's offered grants to build an online course (Online Learning Consortium, 2017). The foundation has continued to date to fund research seeking to advance the effectiveness of

distance learning. Distance learning is characterized by a two-person or groups interaction between learners and students. Technological innovation has therefore improved the production, organization, communication, and distribution of course content thereby changing interactions and relations between learners and students. Some of the innovations include adaptive learning systems, videoconferencing, and screen sharing. As the innovations flood the global market, researchers are supposed to develop common terms to define and evaluate different distance learning contexts.

Effectiveness of Online Learning

As online learning continues to take shape in modern teaching and learning, instructors and administrators seek to comprehend the effectiveness of online learning compared to other forms of education. Numerous research studies have been conducted to examine the effectiveness of online learning. Means et al. (2013) investigated the effectiveness of online and blended learning. The authors applied a meta-analysis approach to gathering evidence to accomplish the aim of the study. Experimental studies and quasi-experimental studies were analyzed online and blended learning effectiveness. The study findings were only focused on why online and hybrid learning courses lead to better student outcomes compared to physical learning courses. The findings indicate that the mean effect size of all the 50 included studies was statistically significant ($p < .001$). However, the 27 studies documenting online learning revealed that there is no statistically significant mean effect between online and physical course learning. For the hybrid courses, the mean effect of the 23 studies documenting hybrid and physical learning was statistically significant ($p < .000$). The findings indicate that online learning is not that effective in promoting better student outcomes.

Stack (2015) also investigated the differences in the effectiveness of physical and online learning on student outcomes using a quasi-randomized experimental design. Sixty-four students were recruited into the study. Students who were enrolled in online classes were retained similarly to those in physical learning classes. Both the online and physical courses in this study were taught with the same instructor. Also, similar learning materials and examinations were administered by the same teacher. The study findings revealed that there was no statistically significant difference between online and physical students' academic performance while all other factors were controlled ($.147, p < .05$). Also, there were no variances in students' perceived instruction quality during online and physical courses. However, the small sample size of 64 students implies external validity is threatened.

Similarly, Means et al. (2009) investigated the effectiveness of online and physical courses in student outcomes. The study employed a meta-analytical research design and 51 studies were included. After the screening of the studies, findings revealed that online students achieved statistically significant scores than those in physical learning settings ($0.24, P < .01$). Numerous limitations were witnessed in the study and these include a small sample size, possible author bias, and lack of retention reports. Despite the findings that online course learning is effective compared to physical course learning, the study failed to demonstrate that online courses are superior learning approaches over physical learning approaches. The study pointed out that online learning offered additional learning time, more collaboration opportunities, and adequate learning materials that are more likely to enhance student outcomes.

On a similar note, Nguyen (2015) explored the effectiveness of online learning compared to physical learning following a conceptual research study. The findings of the conceptual research indicated that many researchers have found statistically significant effects in student outcomes when using online courses rather than physical courses. There is improved learning when measured using test scores, collaboration, reduction in learning withdrawal, enhanced learning perception, and student engagement. The study confirmed that online learning student outcomes are better than those studying in physical settings and particularly, students expressed satisfaction in online learning than physical learning. On the other hand, the conceptual study also highlighted many research studies will null findings. Many of those studies revealed that there are no statistically significant effects on student outcomes when using online over physical learning. The conceptual study has also revealed that previous research studies have negative findings although those studies are few. Physical learning was found to have more positive effects on student outcomes than online learning (Nguyen, 2015). In general, the study indicated that there is a clear understanding regarding the effectiveness of online and physical learning on student outcomes.

Finally, Lee and Ko (2015) investigated the effectiveness of different online learning approaches and learning outcomes. The study employed a pre-test-posttest research design to measure the performance of 60 learners before and after completing a python course, playing a debugging game, and using Gidget's puzzle. The pre-test-posttest comprised 24-multiple questions with answer options. Findings indicate that all students failed those exams. However, those playing Gidget's puzzle and completing a python course showed a 100-percent increase in giving the right answers. Following the

findings, the researchers suggested that online learning through different strategies can enhance student outcomes within a few hours when guided by the learning curriculum. Looking deep into the discussion about online learning, it is clear that the effectiveness of online learning has not been well understood due to the mixed research findings. One cannot make conclusive views about online learning and its link to student outcomes. Therefore, our current topic was necessary to understand how different students' factors are related to student academic achievement in an online learning environment.

Historical Overview of Academic Achievement

Academic achievement is the present level of the student's learning (Department of Education, 2016). In other words, it is the student percentage whose learning is currently meeting or exceeding their grade-level standards. Walberg's theory is a theory related to academic achievement. The theory suggests that the psychological features of individual students plus their immediate psychological environment usually have a great influence on the students' education outcome (attitudinal, behavioral, and cognitive) (Rugutt & Chemosit, 2017). Continuous assessments or examinations are mainly used to measure academic achievement, but there is no specific or general agreement on how it should be assessed. Individual factors such as emotions, motivation, environment, and anxiety also predict academic performance. Today, many countries use academic achievements to determine the amount of money that a school should receive. A school with more academic achievements usually receives more money, unlike the ones with fewer achievements.

Where there is academic achievement, an academic achievement gap can also be identified. It is also the cause of the differences between the schools with more academic

achievements and the ones with less. Unfortunately, the scholars have not yet reached an agreement regarding the primary reasons for the academic achievement gap; therefore, many studies are in existence today. They usually cite different factors, both structural and cultural, that affect students' performance at school. Still, some researchers have suggested that academic achievement is much more closely associated with social-economic status and race. For instance, when a person is being raised in a low-income household, there are fewer academic resources, inadequate access to health care, and poor nutrition (Parrett & Budge, 2016). All of this could entirely play a part in lower academic achievement.

Historical Overview of Self-regulation

Research associated with self-regulation in the academic field evolved more than two decades ago to learn why students become masters of their learning process. Self-regulated learning encompasses self-beliefs and the self-directive process through which learners transform their mental abilities into academic performance skills such as listening and writing. Research on self-regulation has evolved significantly as a result of methodological and theoretical developments. During the 80s and 90s, many researchers focused more on the influence of individual self-regulatory activities including imagery, goal setting, or self-instruction (Zimmerman, 2008). In this setup, learners were trained to use any of these strategies during their continual learning process. Studies conducted during this period showed that superior learning outcomes were achieved when using such strategies. However, most of these strategies were applied during non-experimental learning contexts such as home settings. The first definition of self-regulation was offered during the American Educational Research Association annual meeting in 1986. The

definition sought to combine self-control, self-concept, and volitional strategies. To understand self-regulation, Zimmerman's cyclical theory is analyzed. The model is organized into three phases including self-reflection, forethought, and performance. Self-Regulated Learning Strategies (SRLS) were only used during one of the three cyclical phases (Panadero, 2017). Moreover, three theories—metacognitive, behavioral, and motivation theories, were utilized to define self-regulation during the learning process (Zimmerman, 2008). The focus of the definition was directed towards an understanding of learners' proactive ability in utilizing different strategies to improve their academic achievement. Different instruments, including the Online Self-Regulated Learning Questionnaire (OSLQ), Learning and Study Strategies Inventory (LASSI), the Motivated Strategies for Learning Questionnaire (MSLQ), and the Self-Regulated Learning Interview Scale (SRLIS) were developed to measure self-regulation. The instruments were classified as aptitude measures of self-regulation (Zimmerman, 2008). Since event measures can help evaluate sequential reliance on responses, the three scales were, and are, well suited to measure changes in self-regulation in authentic and real-time contexts.

Historical Overview of Academic Motivation

Early theories on motivation exhibited humans as machine-like reactive beings forced by external and internal influences to act in whichever manner. Prototypical theories of motivation include Hull's learning and its associated reformulations. The learning theory posited that if a person is pushed using one button, motivation would be recognized. In such scenarios, there was no room for self-regulation or conscious reflection. However, motivational forces relay energy without one's awareness leading to

an equilibrium state that constitutes self-preservation, arousal reduction, or need satisfaction (Gollwitzer & Oettingen, 2015).

In the modern era, motivational theories associated humans with intelligent beings that are all-knowing and judge of their behavioral actions. For instance, expectancy theories postulate that individuals use a rational approach in choosing their goals depending on the expectation of attaining those goals. These theorists posit that task choice is influenced by the subjective probability of success and reward value that also depends on the difficulty of the task. According to Gollwitzer and Oettingen (2015), modern theories of motivation included expectation-related terms such as outcome expectations and differentiated incentive-based values (extrinsic effects). Based on the attribution theories, motivation drivers have been proposed to be the root cause of actionable outcomes. In these theories, individuals are considered investigators examining the cause of their behavior. According to these theories, a person's readiness to engage in a learning process is influenced by different factors that determine the overall expectations and emotions. The current theories of motivation go beyond focusing on human beings as all-knowing and just and regard them as flexible strategists (Gollwitzer & Oettingen, 2015). Therefore, they can be viewed as beings seeking intrinsic and extrinsic motivation.

The Relationship between Self-regulation and Academic Achievement

North (2019), in the study of understanding students' self-regulation in asynchronous online learning environments, indicates that the higher the Self-Regulation Learning (SRL) skills a student have, the higher their academic achievement will be. Thus, Self-Regulation Learning (SRL) is highly correlated with academic achievement in

online learning. On the other hand, the study found that a student with low Self-Regulation Learning (SRL) skills did not get enough time or a good place to be ready for their class, and they missed some deadlines such as group discussion.

Chumbley et al. (2018) conducted a Measure of Self-Regulated Learning in Online Agriculture Courses. The purpose of the study was to explore the online self-regulated learning level for secondary students in hybrid and online dual enrollment agriculture courses. The questionnaire for collecting data was designed to use (OSLQ). The sample population for the research study was 106. After data collection, the central tendency was utilized in analyzing the data. The study findings revealed that the effects of previous online learning experiences upon students' self-regulated learning scores were not statistically significant. Following these findings, it was concluded that there is a statistically significant correlation between a student's gender and grade level and a student's ethnicity and previous online course experience. Linking this with self-regulation, it can be argued that environment and task strategies have the highest rated result in self-regulated learning. Thus, one can conclude that self-r regulated learning is significantly associated with the student experience in online learning which increases their levels of self-regulated learning.

Barnard-Braket et al. (2010) investigated the profiles in self-regulated learning in the online learning environment. The authors highlighted that the learners who are self-regulated appear to have more high academic achievement outcomes compared to those who do not have self-regulated learning behavior. The aim of the present study was to examine whether there are competency profiles and self-regulated learning strategies in students. The authors conducted two studies using different two samples to accomplish

the aim of the study. The study applied the Online Self-Regulated Learning Questionnaire (OLSQ) a 24-item scale with a 5-point Likert-type response format. Key of OSLQ has six subscales that were investigated during the study were environment structuring, goal setting, time management, help-seeking, task strategies, and self-evaluation. To check the validity and reliability of the Online Self-Regulated Learning Questionnaire it was pre-tested with two samples of learners in the online environment. Data analysis was done using SPSS. The study findings revealed five special self-regulated learning profiles repeated in the two study samples super, competent, forethought-endorsing, performance/reflection, and non- self-regulators. Also, learners were significantly different in their academic achievement. In general, the study highlighted that self-regulation predicts the academic achievement of students in an online learning environment.

Sharma et al. (2007) investigated the student's self-regulatory attributes and their academic performance using a quantitative research design. The authors highlighted that for one to succeed in the learning process, specific attributes promoting self-regulation are required. Group pressures, social factors, and family factors that influence student outcomes are missing in online learning. Students indirectly interact with their colleagues and teachers, and teachers never play an active role. Generally, students become isolated and they largely depend on their capacities and abilities to become successful. Key self-regulatory attributes that were investigated during the study were intrinsic goal orientation, e-learning self-efficacy, self-efficacy for SRL, and environmental management. To evaluate the link between self-regulation and student achievements, primary research was done. The sample population involved 96 undergraduate students

from New South Wales University undertaking a technology course. To check the validity of the online questionnaire it was pre-tested with a small group of academic staff. Data analysis was done using SPSS in which both descriptive and inferential statistics were applied. The study findings revealed a positive and significant impact on student academic performance (measured using mastery, retention, and job performance). Particularly, intrinsic goal orientation (0.397), e-learning self-efficacy (0.334), self-efficacy for SRL (0.228), and environment management (0.124) were positively and significantly related to student performance since they were all above the acceptable value 0.05 ($p > 1.232$). In general, the study highlighted that self-regulation predicts the academic achievement of students when taking online courses.

Cazan (2014) examined self-regulated learning and its link to academic performance in online learning. The quantitative research design was utilized in guiding the collection of data. Moreover, the research employed a self-regulated learning questionnaire to collect participant views and opinions. The sample population involved 80 undergraduate students enrolled in Moodle online courses in the national defense University in the U.S. Reliability of the study findings was assessed using the Cronbach alpha test. The academic performance of students was obtained using their GPA grades, earned during their coursework. Independent variables include environmental structuring, self-evaluation, goal setting, task strategies, time management, and help-seeking. Following Pearson's relationship assessment, it was revealed that environmental structuring ($r = .250, p < .05$), goal setting ($r = .294, p < .01$), and self-efficacy ($r = .244, p < .05$) have a weak but significant correlation with academic achievement. The correlation between task strategies, help-seeking, time management, and self-evaluation

was statistically insignificant ($p > .05$ or $.01$). In general, self-regulation through its different attributes predicts academic achievements among students taking online courses.

Also, Barnard et al. (2008) researched the relationship between perceptions and achievement in online self-regulatory learning. The researcher employed a quantitative research design to guide the process of data collection. An online self-regulated learning questionnaire (OSLQ) was utilized in this research to gather evidence from recruited participants. The sample population involved 628 students selected from a public university in Southwestern, U.S. The students were undertaking different degree courses. Six important constructs were assessed during this research study. These included self-evaluation, environmental structuring, goal setting, task strategies, time management, and help-seeking. After data collection, SPSS was used to examine it further, relative to the research questions and aim of the study. The study findings indicated a strong and positive relationship between self-regulation and student academic achievement in online courses when student perceptions about collaboration and communication increase (standardized path value $.70$, $p < .01$). However, the relationship between academic achievement among students undertaking online courses and their self-regulation was positive and weak for a standardized path value of $.18$ ($p < .01$) (Barnard et al., 2008). The study findings showed that as online learning is increased, there is a subsequent increase in student perceptions about collaboration and communication which in turn increase academic scores.

Finally, Kirmizi (2015) studied the influence of student readiness and academic attainment and satisfaction. Student readiness was measured using five constructs

including internet self-efficacy, student control, motivation, online self-efficacy, self-directed learning, and communication self-efficacy. A quantitative research design was utilized in this study. Online questionnaires designed to use the online readiness scale were administered to target learners. The sample population involved 84 students from Karabuk University, Turkey. Both descriptive and inferential statistics were applied in accomplishing the main aim of the study. The study findings indicated significant positive relationships between academic attainment and internet self-efficacy ($r = .21, p < .01$), student control ($r = .40, p < .01$), motivation ($r = .24, p < 0.1$), and self-directed learning ($r = .40, p < .01$). However, there was a weak but significant relationship between academic attainment and online self-efficacy ($r = .03, p < .01$). The study indicated that there is a statistically significant relationship between student readiness (signifying self-regulation attributes) and academic achievement.

The Relationship between Academic Motivation and Academic achievement

Motivation has been noted to be a key element in online learning. Hartnett (2012) investigated achievement participation, and motivation in an online learning environment. A quantitative cases study research design was used in guiding the collection of relevant data for addressing the research questions to accomplish the aim of the study. The sample population was identified from a New Zealand tertiary institution. The sample involved 21 students. Descriptive and inferential statistics were applied to examine the data. The study findings showed that there are no relationships between online activity, motivation level, and student achievements ($p > 0.01$). The motivation was noted to be a key determinant of online learning activities that facilitate student achievement. When learners become active participants in online educational activities,

they are likely to achieve higher academic grades. With higher motivation, students are more likely to embrace teamwork thus enhancing their learning outcomes.

Students are also motivated by their achievement goal to satisfy their curiosity and thus improve academic competence. Lathrop (2011) conducted quantitative research using an online survey monkey instrument to gather views of undergraduate students undertaking biotechnology courses online in the University of Nebraska, U.S. The sample population entailed students enrolled in a 100-level plant science course with 25 online students and 150 on-campus students, 300-level with 80 on-campus students, and 25 online students. After data collection, SPSS software was used in examining it to accomplish the aim of this research study. Both descriptive and inferential statistics were applied to evaluate the data. Descriptive statistics were used in evaluating participant demographic information while inferential statistics were used in evaluating data linked to the research variables. The study findings showed that there is a strong correlation between motivation and quiz scores. Motivational factors including self-efficacy (0.26), active learning strategies (0.278), and motivational survey total (0.240) have a significant correlation ($p < .05$) with quiz scores even though it is weak. In general, student motivation in online courses predicts their student test scores.

The Relationship between Self-regulation, Academic Motivation, and Academic Achievement

The three terms have a positive and significant relationship with each other. For the students to academically achieve, they must self-initiate actions that typically involve setting goals and regulating individual efforts to reach the goal (academic achievement) (Xiao, Yao & Wang, 2019).

In most cases, those students with better self-regulation usually have a better opportunity to achieve academically because they find it possible to manage their emotions and emotional influences. Also, they mainly find themselves academically motivated to study and do proper planning based on the target they have in place. The more self-regulated students are, the more their emotions (both negative and positive), motivation, planning, and self-efficacy improve. A student can be free and selective in determining how much of his or her assignment should be done, and how it will be completed. To achieve academically, they must know their weaknesses and strengths (Sahranavard et al., 2018). However, for them to achieve academically, the lecturer or the professor has to know these weaknesses and strengths as this acts as a guide to help the students self-regulate.

Schwam, Greenberg, and Li (2020) investigated self-regulation among 477 students attending online classes in traditional university settings. More than 50% of the female population were found to be less self-regulating as compared to their male counterparts who achieved an average score of 90 % on the self-test. Thus, schools need to develop programs that engage students to enhance their cognitive and behavioral control.

Code (2020) also investigated the effectiveness of academic motivation and achievement in the online learning environment using quasi-randomized experimental design. The study findings indicate that there was some statistically significant difference between students who were academically motivated and those that were not. Students who were motivated achieved higher grades than counterparts who were not given any academic motivation while other factors were controlled.

Lin, Zhang, and Zheng (2017) found that gender status affected students with lower grades more so in line with online learning. The study was conducted with the same instructor with similar learning materials which, in the end, revealed that 20 students out of 55 performed poorly. Out of the 20 students, 13 female students failed while 7 of the male counterparts failed. The findings indicate that female students tend to be more affected especially if they are low performers. Female students need to be engaged in cognitive training to enable them to self-regulate just like their male counterparts. Academic motivation leads to the excellent performance of students, more so with the current increase in online learning.

Popa (2015) conducted a primary study to identify the relationship between secondary school students' self-regulation, motivation, and academic performance. The study of documents and the questionnaires were the two research methods that were used in this investigation. The study included 270 secondary school students whose ages ranged from twelve and fourteen years. The 270 subjects consisted of 141 (52.2%) girls and 129 (47.8%) boys, representing a relatively homogenous group based on the gender criteria. However, there was a slight female gender predominance. The percentage of the students who partook in the study aged 12 years was 13% (13%), those aged 13 years were 118 students (43.7%), and the 14 years old students were 117 (43.3%). Motivational strategies for learning questionnaires and academic self-regulation questionnaires were the instruments used in this study. The research hypothesis is that the relationship between academic motivational influences and academic achievement is highly affected by the functional learning strategies typically used. Thus, the use of self-regulated learning plan levels is expressively associated with the learning motivation increase.

Through linking this with self-regulation, it can be concluded or argued that self-regulated learning competence has a significant impact on the students' ability to attain academic achievement. It also has a great impact on enhancing the strong relationship between academic motivation and academic performance. It is possible to affirm that academic achievement usually increases if the students self-regulate themselves and get the best motivation that can help them plan to achieve what they aim for.

Self-regulation in learning plays a vital role in providing the self-competence that is gained, and this can help explain the student's connection to academic motivation. Self-regulation does not just enrich academic motivation, but it also predicts outstanding academic achievement. Academic motivation usually results in good high study effort and study strategy, which are both vital in obtaining better academic performance and achievement (Kusurkar et al., 2012). When students lack motivation, they will not reach their goals (academic achievement). However, when proper academic motivation is invested in, the students will become energetic and eventually work hard to achieve their desired results.

Finally, when motivation is not present in academics, students do not have ambition or enthusiasm. When students are well-motivated, their desire and willingness to achieve usually increases academically (Zaccoletti, et al., 2020). Through academic motivation, students find it easier to self-regulate themselves by setting reasonable academic goals, becoming happier, and more energetic to get positive results, leading to more academic achievement.

Summary

From This review of literature, it is clear that distance learning has evolved to the current online learning. Many universities are now adopting online learning to address the rising demand for student enrollment. Research associated with online learning is in the early stages, and this particularly means academic research is not extensive.

Looking deep into the above discussion, research has been conducted to determine how student learning outcomes are related to student-related factors such as motivation and self-regulation. However, self-regulation has been noted to be the only widely researched construct concerning student achievement in an online learning environment. Motivation has received minimal attention in previous research. Therefore, this research will help address this literature gap. The distinct relationship between motivation and student achievement measured by GPA was to be studied, and this was to add to the literature. Also, similarly, the evidence gathered was used to address the minimal research in this area. Previous research addressing student factors and student academic achievement have been done. In most of the research studies, quantitative research designs have been employed (Cazan, 2014; Kirmizi, 2015; Hartnett, 2012; Bakar et al., 2010). The next chapter explores the methods, population and sample, research design, and instrumentation employed during the data collection and analysis process.

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

The current research study aims to determine whether self-regulation and academic motivation are related to undergraduate students' academic achievement in an online learning environment at Andrews University. Particularly, this chapter aims to examine the different methods and procedures utilized in the collection and analysis of relevant data to answer the research questions. Since the research study involves human participants, this chapter highlights how they will be recruited and the sample that participated in the final data collection process. After exploring the research design, the researcher considers it when planning for this study. Also, the different methods of data collection and analysis are comprehensively explored to determine the best method for this research study. Similarly, ways in which data validity and reliability of this research study will be guaranteed are described in-depth in this chapter. Finally, ethical considerations that will be upheld in this research study are explained in this chapter. The research questions are important when deciding on the best method of gathering and analyzing data to accomplish the purpose of the study.

Research Questions

The core questions of this study are:

1. What are the levels of self-regulation of undergraduate students in an online learning environment at Andrews University?
2. To what extent can self-regulation and academic motivation predict the academic achievement of undergraduate students in an online learning environment at Andrews University?
3. Are there gender differences between self-regulation and academic motivation in an online learning environment at Andrews University?

Research Design

The research design defines the strategies undertaken to complete the research study. The research defines a number of things that include the data collection method and nature of the research study. It is an important step that can determine the success of a given research study. In Essence, a research design is a process involved in gathering and analyzing data relative to the formulated research objectives. Moreover, it is a general plan that guides researchers in answering research questions (Gaus, 2017; Rahi, 2017). Based on the control of behavioral activities, focus on current activities, and research questions, key research strategies in the contemporary social world including case studies, history, surveys, experiments, case studies, and archival analysis facilitate data collection. Research studies employing experimental research design involve variable testing. The influence of one variable on another variable is examined in such studies. In most cases, this design is applied when seeking cause effective understanding of the social phenomenon under investigation. Scientific methods including laboratory methods are often utilized in experimental studies. Obtained outcomes are compared with the expected research outcomes (Campbell & Stanley, 2015; Baker, 2017).

To accomplish the aim of this research study, seeking to determine whether self-regulation and academic motivation are related to undergraduate student academic achievement in an online learning environment, a non-experimental quantitative design will be employed. The correlation design will be used in this research to determine the relationship between the study variables as well as to examine the validity, reliability of the study. Participants for this study will be involved in the data collection to give their views regarding the social phenomenon being investigated. The best way to collect such quantitative data will be through surveys.

Different limitations linked to the research methodology are distinguished in this research study. First, the research findings will be limited to undergraduate students taking online courses. This implies these findings will not be applied to other student populations to study the same research problem. Also, the methodology will be limited to online students only. This meant the findings will not be applied in investigating the same research problem among other students. Research bias will also be anticipated since the researcher will apply the snowballing sampling technique. According to Flint and Atkinson (2001), the researcher could be inclined to choose close friends when using the snowballing sampling technique. Since the sample population constituted many participants, such bias will be overcome. Another anticipated research limitation will be data loss. While the researcher will be downloading the questionnaires and storing them, some will likely get lost. However, the researcher will be very careful during the process to ensure all information will be retrieved for analysis.

Data Collection

Before beginning a research project, the researcher will be required to secure approval from the Andrews University Institutional Review Board (IRB) (Appendix A). After obtaining the approval, a questionnaire will be developed online and a link to the questionnaire will be sent to the 150 participants. The surveys will be online using Google Forms and will be sent to the students, and they are to give referrals to their friends to be recruited in the research activity. The sample will be limited to those who study at Andrews and are undergraduate students using LearningHub. The best way to collect such quantitative data will be through surveys. For this survey, online questionnaires will be used to collect data. These questionnaires will be designed to have two sections. The survey strategy is essential when it comes to conducting social research to gain insights into people's experiences with a social phenomenon (Rea and Parker, 2014). Surveys are employed in different research fields to guide the collection of quantitative and/or qualitative data. Many researchers prefer surveys because they are cost-effective and convenient modes of data collection (Owens, 2002). The questionnaire has a short explanation of the aim of the study. As well as instructions on how to complete the survey, the assurance of saving their information, and the results will be anonymous. The participants will be given six weeks to complete the questionnaire after which data will be downloaded and kept safely for further analysis to accomplish the aim of the research study.

Population

The population in this research study shows the entire number of subjects under investigation. According to Cresswell, (2002) the research population is a well-defined

collection of objects or individuals with similar characteristics and of interest to a research study. In this research study, the plan is to explore undergraduate students' self-regulation and academic motivation are related to their academic achievement in an online learning environment. All the participants came from the same population who is studying at Andrews University taking online courses and using LearningHub. The target population under investigation consisted of all characteristics of undergraduate students at Andrews University in online learning. The total number of population-based on the number of students taking online courses at Andrews University is 874 students in the United States. This population includes all groups of students ranging from first to fourth years. It also includes undergraduate students from diverse backgrounds that include gender, age, marital status, major, race, ethnicities, and GPA. The population under study considered only the online students registered and studying at Andrews University. The population of the student will be determined by accessing the online student platform of undergraduate students studying at Andrews University. It considered both local and foreign undergraduate students registered for the online courses at the university.

A study conducted by Bay Atlantic University (2021), showed that more than 6,900,000 students from the United States take at least one of their courses online. When asked the various reasons for starting an online career, 63% of the students cited their reason for committed to an online because it aligned with their current life or work responsibilities while 34% indicated that online learning was their preferred way of learning. The remaining 3% admitted that they found the course of study via online platforms. Among the group, 60% of the students reported that online education has helped them improve soft skills and problem-solving skills. In 2020, 20 million students

enrolled into higher institutions of learning in the United States. Female students constituted a large percentage of 59.5% while males made up 40.5 %. Among the students, 12 million were Whites or Caucasians, 4.3 million Hispanic, 2.1 million African American, 1.5 million Asians and 152, 600 American Indians (Hanson, 2021).

Sample

The sample defines the number of objects or individuals included in a research study to represent the entire subjects under investigation. It references the total number of participants selected to take part in a research study. Effective sample size will be a representation of the true population to ensure that the findings obtained reflect the reality of the entire population. The specific sample selected from the population will entail 150 undergraduate students from Andrews University. The 150 students will involve students of all ages and genders from different settings. The sampling only considered specific ages that range from 18 to 25 years. However, both gender groups are selected to participate in the study. In the study, there are 85 male students and 65 female students. The sample represents the participant's marital status, single, married, separated, or divorced. The majority of the students are single while less than 20 % are married and 1% are separated or divorced. The sample consists of students from various majors. The sample also represents various ethnicities and includes Hispanic, Latino, American Indian, Alaska Native, Black or African American, Caucasian or White, Asian, Multiracial, Other, prefer not to say, as well as their GPA and the college level, freshman, sophomore, junior, and senior. The participant sample will be selected using a snowballing non-probabilistic sampling technique. Snowballing sampling is a method in which participants offer referrals to the researcher to recruit the target sample (Cresswell,

2002). The method will be used in this research study because it is quicker in finding reliable samples. Moreover, it is a cost-effective approach since referrals are obtained from known persons (Etikan et al., 2016). The method will particularly be used in selecting undergraduate students undertaking online courses.

Instrumentation

Instruments are the materials that the researchers used to collect the required data and information from the respondents of the research study. The instruments used in the research study should be able to meet the established objectives and answer the relevant research questions. The instruments that will be used to collect the information from the participant will be survey questionnaires. The instrument will be utilized in this study includes two sections with 7 items for the demographic information questionnaire, 24 items measuring self-regulation, and 28 items measuring academic motivation with a total of 59 items (see Table 1). Section one will be a socio-demographic questionnaire including gender status, marital status, age, year of college, major, race, and GPA. Self-report questionnaires will be selected for this research study because they could be administered to a large sample of participants (Demetriou et al., 2014). Moreover, it could allow participants to express their feelings, beliefs, and attitudes. The design of the self-report question will be based on nominal scales. In the nominal scales, the selected students will fall under a single category or group provided. The validation of the self-report questions will involve the identification of the number of responses and developing appropriate groups based on various demographic backgrounds that include age, gender, and level of education among others. It will ensure that a participant only falls under one category to ensure that the result is valid and achieve the established goals. The second

and final section will be for gathering information about self-regulation, academic motivation, and academic achievement in an online learning environment among undergraduate students. The second section has two parts, part one will be measured self-regulation utilizing the Online Self-Regulated Learning Questionnaire (OSLQ) (Barnard et al., 2009), and part two will be measured academic motivation utilizing the Academic Motivation Scale (AMS). Part one utilizes the Likert scale ranging from 1 to 5 which is 1 (strongly agree), 2 (agree), 3 (neutral), 4 (disagree), 5 (strongly disagree), while part two utilizes the Likert scale ranging from 1 to 7 which 1 (strongly agree), 2 (agree), 3 (mostly agree), 4 (neutral), 5 (mostly disagree), 6 (disagree), 7 (strongly disagree). The instruments chose because of their wide use throughout research literature and also their high validity and reliability (Barnard et al. 2010; Vallerand et, al., 1992; Souza et, al., 2021; Haslofça, et al., 2016). The two-scale are valid and reliable. Table 1 presented the survey instrument items.

Table 1

Survey items

<i>Survey Section</i>	Number of items	Range of Items
Demographic Information	7	1 - 7
Self-Regulation	24	8 - 31
Academic Motivation	28	32 - 59
Total Items	59	

It was important to assess the reliability and validity of the instruments used to collect the data for the research study. The reliability assesses the degree to which the research method and instrument used produces consistent and stable results. On the other hand, the validity assesses how the findings of the research study can accurately address the research problem under investigation. OSLQ was developed based on Social

Cognitive Theory (SCT), Zimmerman's cyclical theory during the performance phase to measured self-regulation Barnard et al., (2009). The scale included six subscales (goal setting, environment structuring, task strategies, time management, help-seeking, and self-evaluation). Barnard et al., (2009) use a quite accessible copy of all items on the instrument including psychometric information. The broader version of the instrument reflects a multi-dimensional conception of self-regulated learning while the shorter form of the instrument entails six important aspects outlined above. The reliability of the instrument was assessed by different researchers. On using the scale, it indicated an acceptable internal consistency score in which $\alpha = .93 - \alpha = .94$ (Barnard-Braket et al. (2010). Research done by Nunnally (1978) suggested the reliability score of .70 or more acceptable when used in basic social research thus demonstrating the reliability of the instrument used. The validity of the Instrument has been determined in previous studies where it has been used to study student self-regulation in online classes over 18 various academic exercises (Barnard et al. (2009). The scale also explained a good construct validity with the variables scores on the range of variables based on previous research.

AMS was initially normed from the French measure of motivation that was developed based on Self-Determination Theory (SDT). AMS college version was conducted to measure academic motivation (Vallerand et al., 1992). The scale translated from the French measure and included seven subscales (intrinsic motivation-to know, toward accomplishment, and to experience stimulation, also, extrinsic motivation identified, introjected, and external regulation, and amotivation). The reliability of the Academic Motivation Scale (AMS) was considered and it was found the same internal consistency as the French version between .77–.83. Researchers conducted confirmatory

factor analysis (CFA), to assess the reliability and validity of AMS. The confirmatory factor analysis of the seven subscales has confirmed sufficient good reliability in various researches. The alpha values range for the AMS were between .62–.86, .77–.86. test-retest correlations between .79–.91, and .70 and higher (Vallerand et al., 1992; Souza et al., 2021; Haslofça, et al., 2016). The AMS validity test of the original factor analysis of the French version of the scale was positive. The confirmatory factor analysis of the seven subscales has confirmed sufficient good validity.93, .91, and .94 of the Normed index, Adjusted Goodness, and Goodness of Fit Index.

Data Analysis

Data analysis involves the techniques that the research study uses to analyze and interpret the data and information received from the study respondents. It is the most important step that yields to the findings of the research study. In this research study, the data analysis will be achieved using Statistical Package for Social Science (SPSS) software. Moreover, it will be done in two phases. The first phase of data collection involved analyzing participant demographic information. Descriptive statistics will be applied in analyzing this data. Descriptive statistics are regarded as a set of descriptive coefficients summarizing a specific dataset representing the entire sample population (Mishra et al., 2019). Measures of frequency will be particularly applied in this case to determine the count, percentage, and frequency of the undergraduate students based on different demographic variables.

The second phase of data analysis will involve the evaluation of evidence associated with the dependent and independent variables. Both descriptive and inferential statistics will be applied in accomplishing this objective. For descriptive statistics,

measures of central tendency and dispersion will be applied to determine the means and standard deviations, the most common response, and the spread of data respectively. Inferential statistics is described as a mathematical and logical generalization of the sample population's data (Bettany-Saltikov & Whittaker, 2014). Different types of inferential statistics include multiple regression analysis (MRA) and T. Test of ANOVA. However, this research will seek to determine the relationship between the dependent variable and two independent variables. The Spearman Rank Correlation will be used to understand the strength and direction of the association between the variables (Spearman's Rank-Order Correlation using SPSS Statistics, n.d.).

Ethical considerations

Ethical consideration in the research study is important in ensuring that the respondents are not subjected to some harm or violation. It ensures that respect for dignity is observed and prioritized. Approval from the Andrews University Institutional Review Board (IRB) will ensure that the study is certified thus allowing the participation of the respondents. There will be several ethical considerations to take into account when conducting the study. These considerations will include: ensuring the safety and security of the information provided by students including their identities especially for those who wished such data remained confidential; maintaining integrity when conducting the research to ensure it adhered to required academic principles and standards; and finally, the study will have to ensure that it reports accurately on the data collected and results obtained. Adhering to these ethical considerations will ensure the study does not engage in unethical practices and has the full confidence of those reading it, and the integrity to back its results as truthful and factual.

Summary

This study aims to determine whether self-regulation and academic motivation are related to undergraduate student academic achievement in an online learning environment. To accomplish this aim, there will be a need to select the most appropriate research method of data collection and analysis starting from laying the foundation of the research through identifying the relevant population and sample for this research and the research design. Based on this research design, it will be appropriate to collect and analyze quantitative data. Furthermore, the survey strategy will be employed in ensuring that reliable quantitative data will collect and ways of ensuring the validity and reliability of the instruments and findings. Reliability will be determined using Cronbach alpha, while validity will be determined using content validity and construct validity. The survey will be designed to include a questionnaire with two sections: one for demographic data collection, and the other for collecting information about the research variables. Also, the IRB board standards will be evaluated in this chapter by the researcher. This chapter will also highlight the limitations of the research methodology in particular. Statistical Package for Social Science (SPSS) software will be used to analyze the study data. Finally, it has captured the ethical considerations for the study. The following chapter presents research findings.

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Study of Business Communication as Career Education
: Instruction Contents of Telework

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Abstract:

Working format has been changeable due to the prolonged COVID-19 which everyone is unpredictable. There are many people who are not accustomed to the new working style of teleworking from face-to-face working format. Face to face working format was common in Japanese society. We have to learn the new way of working format and make it available to the global society. There are many Japanese people who have not been able to switch the new working format. In response to changes in working styles, it is necessary to incorporate the contents that has not been dealt with in career education so far. It is important to give flexibility to the content of lectures due to changes in working styles and social conditions. Japanese students and professors had their first experience of remote classes due to COVID-19. It is important for students to learn about this new way working format of telework in society. In this paper, first the author will introduce the current state of telework in Japan. Second the author will introduce the lecture named Business Communication as career education. Finally the author will derive what the contents will be needed in career education for the new working format telework. It will also be required for the working format in the global society.

Key words:

Business Communication, Career Education, Telework, COVID-19, Pandemic

1. Introduction

In addition to the impact of the declining birthrate and aging society and structural changes in industry and the economy, employment has become more diversified and the employment has become more diversified. As these situation and liquidation progress, the practice of lifetime employment, which is a characteristic of the Japanese employment system, has decreased sharply. Under these influences, the environment surrounding employment has been changing. Since Japan regards human resources as an important resource, there is concern that the turnover of young workers will cause a decline in productivity. Career education at universities is required for students to improve their qualifications and abilities as professionals and to increase their interest and motivation to work. The percentage of employees leaving their jobs within three years after graduating from university is increasing. Neat (Not in Education, Employment or Training) and freeters (males aged 15 to 34 or

unmarried women (excluding students) who work as part-time or wish to do) are also on the rise. The increasing number of young people who cannot smoothly become members of society due to the large gap between universities and society has become a social problem.

Students are required to improve their qualifications and abilities as professionals in this environment. Universities have to provide a career education to raise their interest and motivation higher for working. Looking at the current state of career education at Japanese universities, it is standardized and the credits are limited. As there are many students who rely on social media for their means of communication, it is undeniable that they are unable to build relationships well and that their sociality tends to become more and more unbalanced as it is.

The need of career education at universities has become indispensable with the passage of time. The Central Council for Education of the Ministry of Education, Culture, Sports, Science and Technology proposed the implementation of career education in 1999, and it has been promoted in earnest. The content required for career education has changed with times and occasions, and it has been introduced and practiced in various ways.

Working format has been changeable due to the prolonged COVID-19 which everyone is unpredictable. There are many people who are not accustomed to the new working style of telework from face-to-face working format. Face to face working format has been common in Japanese society for a long time. We have to learn the new way of working format and make it available to the global society. This working format telework that transcend national borders and time differences should not be the only working format for COVID-19.

Telework is slowly spreading recently in Japan. Twenty years ago, few people knew the word telework in Japan. Japan is an island country and Japanese has valued face-to-face working format for a long time. There are many Japanese people who have not been able to switch the new working format. In response to change in working styles, it is necessary to incorporate the contents that has not been dealt with in career education so far. It is important to give flexibility to the content of lectures due to changes in working styles and social conditions.

The purpose of this study is to what contents will be needed in career education for telework. First the author will introduce the current state of telework in Japan as the background of this study and second will introduce the lecture named Business Communication as career education. Finally the author will consider what the new contents will be needed in career education for the new working format telework. It will also be required for working format in the global society.

2. Current Status and Issues of Telework in Japan

The global pandemic of COVID-19 requires a shift to a new lifestyle. Efforts for non-face-to-face lifestyles using ICT, such as telework, distance learning at schools and telemedicine are expanding at a stretch. There are three types of telework. It can be broadly divided into (1) "working at home", (2)

working at a "satellite office", which is a dedicated space outside companies, and (3) mobile working with PC, tablet, and smartphone.

2-1. State of Telework

According to Annual Telework Population Survey (Ministry of Land, Infrastructure, Transport and Tourism,2020), the percentage of teleworkers was from 9.8% (2019) to 19.7% (2020). Telework implementation rate increased significantly during the state of emergency. Though it reached 20.4%, it decreased 16% level after the cancellation. In April-May 2019, when the state of emergency was declared, the implementation rate was 31.4% in the metropolitan area, while it was only 13.6% in the local metropolitan areas. On the other hand, although 9.7% carried out telework again or for the first time as part of this measure, only 12.6% worked from home without commuting. In the other hand, the survey (Investigating the effects of COVID-19 on the consciousness of working people, Japan Productivity Center,2020,) shows that there are more than 60% who would like to keep working by telework.

According to these surveys, people have been working as face-to-face at an office in Japan, even if the life-threatening infectious disease occurs. In other words, it turns out that they are unfamiliar with telework due to lack of understanding. However, many people would like to telework even after COVID-19.

2-2. Background to Prevent of Telework

The following background has been pointed out as the reason why telework is not widespread in Japan. After these issues can be resolved, Telework will become new normal working format in Japan.

- (1) Security
- (2) Old custom: face to face working format
- (3) Difficult to manage personnel management
- (4) Need to review the evaluation system
- (5) Lack of communication
- (6) Difficult to switch to private
- (7) Environment suitable space(room) for telework

3. Basic Preparation Knowledge for Telework

3-1. Items for Telework

Students have been experiencing online classes due to this pandemic. However, listening to lectures unilaterally is not the same as working by telework. In order to work comfortably by telework, there are essential items and remarks that must be prepared. The items and remarks required for telework

are as follows.

1) PC and stable internet environment (Optical line and mobile Wi-Fi needed)

2) Check and execute updates manually

3) Headset with microphone and earphones

Though people may be able to connect with own PC's microphone and speakers, they will sometimes catch noise. Also, since they can hear the other party's voice clearly, a headset or earphone / microphone may be more suitable for web meetings.

4) Camera for WEB (PC built-in or external WEB camera)

5) Chair with adjustable height and excellent cushioning

Chair is often not suitable for long hours working, and it often causes stiff shoulders and lower back pain. Choose ergonomically and friendly chair.

6) Easy-to-use height and spacious desk

Office desks which do not be fitted in height can put a lot of strain on the shoulders and lower back for long hours working as the same as chairs.

7) Charger, mobile battery (portable charger) and Wi-Fi routers

PC charger or mobile battery is an indispensable item for work at especially "satellite office" and "mobile work", because people will not be able to work when the battery runs out. In addition to PC chargers, it is safe to have chargers for smartphones and mobile Wi-Fi routers.

8) Mouse and mouse pad

9) Disinfectant supplies for cleaning

10) Security and installation of security software

The first thing to do is to prevent PC from being infected with a computer virus, leaking personal information from the company's network, or attacking company's systems. Therefore, be sure to install the security software on PC. Company or people have to purchase and install paid security software instead of the free version. The price is not cheap, but to protect own self and company. Install paid security software will be needed.

11) Internal Compliance

Each company is required to comply with compliance. Though compliance means "obeying orders and demands", it includes not only obeying laws and internal rules, but also obeying the ethics and morals of the world.

12) PC lock when leaving

If people telework in a space that can live with other people instead of a private room, be sure to lock PC when people leave the desk. Important information may be stolen by operating PC or viewing the screen.

13) Prevention of sound leakage to the surroundings

Since the contents of web meetings and telephone calls related to business may also be related to corporate secrets and personal information, it is important to prevent such voices from leaking to the surroundings.

14) Electronic storage (Portable hard disk and USB)

If people take the company's PC to home and work from home, or if they work in a satellite office or on the personal computer while they are on the move, the worst thing they can do is lose PC, portable hard disk and USB. If PC is equipped with software that allows remote access to the company's PC, it is possible that important trade secrets and customer personal information may be stolen by breaking into the company system. Be sure not to lose PC.

15) Dual display (external display)

It may be more effective to work with dual displays in telework as checking the materials on another screen while looking at the participants' faces on web meetings, and this will make the work faster.

16) Wireless earphones

When listening to audio, use cordless wireless earphones to work comfortably. Some of them have a noise canceling function, which reduces environmental sounds, so people can concentrate more on the voice.

17) Side table(option)

Side table is useful for materials, mobile phone and beverage bottles.

18) Laptop stand and external keyboard

If they've used own laptop for telework, they may have noticed that the laptop's screen is below their eyes, so they'll have to work with their face down for long hours. This puts strain on the eyes, neck and shoulders, and makes it easier for appearing symptoms such as stiff shoulders and eyestrain. To prevent this, there is an item called a laptop stand which they can keep the laptop screen at the height of sight, so they can stretch their back and work. However, please note that they will also need an external keyboard as they put the laptop on the desk.

19) Cut blue light glasses

Since telework is also held online, it tends to take longer to keep looking at PC screen than face-face working in a office. Blue light is likely to increase eye strain. To prevent this, use blue light-cut glasses to reduce eye strain.

20) Armrest (if needed)

Armrest is a device that supports the forearm when operating the mouse or typing. It is recommended for people who have stiff shoulders because it reduces the burden on the shoulders to support the arms and relieves fatigue caused by long-term computer operation.

21) Neck pillow (if needed)

Neck pillow is an item that supports the neck and maintains your ideal sleeping posture. It will be effective and relax when they are tired by telework.

22)Indoor partition(option)

If they cannot work in a private room by telework, they may be less focused on their work. In such cases, indoor partitions are useful for creating a space where they can concentrate on their work. They can hide their surroundings and focus more on work.

23) Aroma goods (if needed)

Telework tends to be lacking in exercise because there is almost no movement. It will often cause stress. Aroma goods will relieve stress and provide comfort and relax mentally.

24)Yoga mat (if needed)

Yoga mat is useful for stretching, abdominal muscles and push-ups to relax both physically and mentally.

25. Balance ball (if needed)

Balance ball is useful for various exercises by not only sitting but also taking various postures to relieve the body at small space.

3-2. Basic Manner for Telework

As some companies continue to telework as a new working format in Japan, telework may be expected to become a major trend in working style. For those looking for a job, a company that provides working by telework will be attractive. In this section, we will consider the basic manner required for telework.

-Review of basic manner

- Check the microphone and camera in advance so that you don't panic after the meeting starts, saying "I can't hear the sound!" or "I can't see the camera!".
- Check the background in which you are reflected. Make sure that there are no items such as laundry or leftover food that give you a sense of life. Some web meetings' tools provide a virtual background function that allows you to change the background,
- Get ready 5 minutes in advance. If you try to attend the meeting at the right time, you may have an accident that you cannot connect due to an unexpected poor connection. Try to act at least 5 minutes before starting.
- Mute except when you speak. Keep in mind that if you keep the microphone on all the time, everyone can hear the voices of your family and the sounds of your life.
- Do not hold online meetings in places with other people, such as cafes. If you are not at home, use a private room that does not leak sound without others.

-Higher-grade manners for smooth telework

- Pay attention to the timing of making appropriate responses. Because there is a time lag, if you

make appropriate responses with voices, you may be overwhelmed by the words of the other party. Let's convey your responses with facial expressions and movements, such as nodding with a smile.

- Be careful not to suffer when one is giving own opinions. If you think other person has finished talking, take a breath and then start talking. When the taking is overwhelmed, it is important to give it up as if the other person is an outsider or an older boss, just like at a face-to-face meeting in Japan.
- Be careful so that everyone can give their opinions equally. Especially in the case of a meeting where you are the organizer, it is smooth if you decide the rules such as calling out to people who are not talking and reacting when you ask to give an opinion.
- Manage day and time

Since the time management of telework may be left to ownself, it is required to manage the time of each person so as not to overtime due to keep health. It is necessary to keep the rhythm of life.

- Breaks and well-balanced

When you work in an own room, you sometimes lose your sense of time. It is also important to take timely breaks and stretch to change your mood.

- Clothes

Pay attention to your clothes for working in especially in Japan. It is natural to be careful about your appearance when you participate online from anywhere, but you also need to be careful about the clothes. Suits (men wear ties) or jacket are commonly working style on a case-by-case basis in Japan. It is safer to avoid casual wear at not only face-face meetings but also telework in Japan. Don't spend the day with your pajamas just because you won't go out. You can switch it on and off in your mood.

3-3. Basic Manner for Email and Chat

There are more scenes that utilize email and chat than ever before. Each company has its own rules regarding the proper use of email and chat. Chat is useful for sharing information with multiple people at the same time. Email is formal and popular communication method in business. Unfortunately there are many students who can not write email. They send email without a subject and their name. They always use SNS to communicate with friends. It is necessary to study how to write email and email and chat manner by career education at universities.

-Email manner

- Respond as soon as possible, within at least 24 hours
- How to use To, CC, and BCC properly

The person who directly responds is "To", the person who wants to share information is "CC", and the person who wants to share information but does not want to show the address to To and CC is "BCC". In particular, if you make a mistake using CC or BCC, the receiver will get all e-mail address, which may lead to information leakage, so be careful and confirm how to use them.

- Be precise and specific in the subject line.

Ambiguous subject may be mistaken for promotional emails and may not be opened. Specific project name, contents and your name so that the receiver can easily understand what kind of email she/he receives such as “Changing the location of the regular meeting on XX days” will be needed.

- Attachment file

When sending email with an attachment file, tell the receiver to send the attachment in the email. Large files are sent using a compression or transfer service. Use a password for highly confidential information.

-Chat manners

There are some companies to use chat with other colleagues and clients. It is different from chat with friends.

- Respond as soon as possible.

Since there are many urgent contacts, you can just say a short message like some reaction.

- TPO

You can easily exchange messages by chat, so you sometimes can get excited about topics outside of work. Be careful not to be too relaxed and speak too casually with your boss and senior.

- Use chat as case by case

You have to change from Chat to email, phone and talking directly depending on the content.

4. Business Communication as Career Education

“Business communication” which the author is in charge of is a career education with 2 credit for developing human resources and getting business communication skill and ability for a global society. The class is provided for all students (from Freshmen to Senior) though especially recommended for freshmen. The content of the lecture is wide-ranging; greetings, reception, the manners of visitors and phone, communication, presentation, visit other company, protocol, table manner, business email and document, remote conference, telework and ceremonial occasions. All of lecture contents is essential not only for business but also for individual and family life.

The contents of this lecture are as follows.

Chapter 1 Why do you work?

Significance of working, difference between students and working people, business manner and etiquette required for working

Chapter 2 Basics of appearance

Appearance for working women and men

Chapter 3 Basics of greetings and honorific word

Greetings, bowing, honorific word, honorific title, and complaint handling

Chapter 4 Basics of reception for customers

Welcome guests, upper and lower seats in the reception/meeting room, tea-services, clients' see off

Chapter 5 Basics of reception by phone

How to call, message memo and manner for phone and mobile phone

Chapter 6 Internal communication

PDCA cycle, Report/contact/consult, communication, meeting, company's rule for absent, tardiness, leave early, and taking vacations

Chapter 7 Presentation

Preparation of presentation, materials and power point slides

Chapter 8 Manners of visit and reception

How to make appointment, visits, business cards, and introduction

Chapter 9 Protocol

Protocol, smart for women (Lady on the right), party, dress code, party, gifts, religion, dietary restrictions due to religion and health, and table manners

Chapter 10 Basics skills of business email / business documents, and remote conference / telework

Basics skills of business email, business documents, Introduction of teleconferencing and telework

Chapter 11 Manners for ceremonial occasions

Manner of ceremonial occasions: wedding, ceremonies, funerals and seasoning gifts

The author has been teaching the outline of telework and teleconferencing in this class without the manners of telework. As the survey shows in Chapter2 that more than 60% of people want to continue telework in Japan, telework will be expected to continue in the future. Also, teleworking should be continued to prepare for future pandemics. It is necessary to include more details about telework in the contents of classes as a career education at universities.

5.Discussion for the Efficient Class for Teaching Telework

In this chapter, the author will consider the content of classes that will be added to telework from the next year. To summarize what already mentioned, the Japanese have done face-to-face work as their main working format. Also most of students have done face-to-face classes as their main style of studying in Japan. Due to COVID-19, we had to suddenly make all classes remotely, and work by telework, though we were not accustomed to them in Japan.

The author will consider the efficient class for teaching telework in business communication. 4 steps will be provided. First, students will study the outline of telework. Second, they will watch a video how to work as teleworker to grasp the real image of telework. Third, they will study comparing the difference between face-to- face work and telework. Then, the necessary preparations presented at

Chapter 3 for telework will be presented. Finally, students will learn the knowledge and rules and manner of telework. (https://www.youtube.com/watch?v=PBdiVM_aoD0)

It can be difficult to switch on and off between work and private by telework, and in order to maintain concentration, dressing for work, tidying up around the desk, and doing a light exercise are useful. Write down the work you should do for the day at the beginning. By prioritizing them, the work that needs to be dealt with in a hurry and the work that can be postponed can be visualized. This is the same for face-to-face work regardless of telework and is the basis for starting work. Speak clearly, slowly and loudly in web meetings and interviews. It is important to tell your name first when you would like to talk. Pay attention to the other person and claim your existence.

We have made a good relationship of trust for successful teamwork at office while looking at the other person's face, appearance and working. However, such non-verbal signs and physical beings are not transmitted by digital tools. To make up for that, we need to be very careful and try to make own self feeling by being deeply involved in the thinking process of our colleagues. You need to make a big gesture to convey body language at telework. Exaggerating nods and making appropriate responses, or just thumbs up show others that you are listening and that you agree with the other's claim. Don't forget to be considerate of the people who participate in them. Because it's not clear when and what your colleagues are doing and when they will respond to your request. Preparing the working environment is the basis of telework etiquette. If possible, it is safe to prepare a backup system such as preparing two or more means for the communication line and using another line if one fails. Before you start a chat with somebody, look at the status presence to see if you can talk.

The working environment is changing due to the introduction of telework. The volume of emails, online meeting appointments and the total working hours have been increased. As a result, stress is also increasing. So "respect the time of others as if they were their own" is important. As time is always the most valuable resource, telework can make you realize it. Let's consider whether the email will be an urgent matter or not before sending email during non-business hours. If it is not urgent, you will send it after 9:00 AM(business hour) on the next business day.

6.Conclusion

Many people may have switched to work by telework due to the spread of COVID-19. It is undeniable that companies and employees are not prepared for telework enough due to the sudden change to telework, and many people are having a lot of trouble and being confused. However, telework is generally welcomed. One of the reasons is that commuting time is no longer required. This is because the risk of infection is greatly reduced, and above all, physical strength, spirit, and time can be greatly saved.

Even at universities, hybrid classes of face-to-face classes and remote classes will become the mainstream even with/after COVID-19. Students living in overseas can also take lectures at their

countries by hybrid classes. Working by telework has something in common with remote classes. Learning how to work by telework at university will help students to learn the manners of taking remote classes.

Telework, a new working format in Japan, that is indispensable in a new working style, is likely to require each person's awareness and manners because of the distance from people. It is important not to forget to be considerate of the other person even if you are far away. Continuing working by telework as "new normal" (new daily life) even after pandemic must be a future pandemic countermeasure.

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Discussion Forum Redesign: Student and Faculty Experience

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In this study, the authors consider different formats of discussion forums. In a recent redesign of ECE 315: Language Development in Young Children, a modified discussion structure was implemented. Typically, in courses at University of Arizona Global Campus (UAGC), there are two discussion forums per week, each requiring an initial post and two peer responses. Keeping in mind students dislike busywork and low-level assignments (Buelow et al., 2018), yet still long for a connection in online classrooms (Willging & Johnson, 2009), the researchers sought to modify the existing discussion format.

The ECE 315 faculty developers redesigned the discussion formatting to one forum per week with an initial post at the beginning of the week, three peer responses throughout the week, and one final post discussing overall learning impressions.

The research questions were (1) In what ways has the discussion redesign impacted student performance? (2) What are student perceptions regarding the new discussion approach compared to the traditional discussion approach? (3) What are faculty perceptions regarding the new discussion approach compared to the traditional discussion approach? (4) To what extent do faculty and students prefer the new discussion approach compared to the traditional discussion approach?

The survey went to 203 total students who had taken the course within the last five months. Fifty percent of the students returned the survey, with a completion number of 102. In reference to the redesign impacting student performance, we found a slight increase in overall course grades, but there was no statistical significance. However, regarding student perceptions, 71.6% of the students indicated a preference for the new discussion approach. The top three reasons cited were (1) preferring one in-depth conversation over two brief discussions, (2) a preference for responding to three peers in one discussion rather than four total peers in two discussions, and (3) acquiring further-learning through the final discussion post. Just under half of the respondents had difficulty adjusting to the new forum, mainly citing they had difficulty remembering to complete the final response. However, the majority of students (75%) thought that the new

course design was helpful to their learning, and 81% of respondents would like to see this model in additional UAGC courses.

Of the ten faculty members who completed the survey, seven (70%) would like to see the new model in more UAGC classes, saying that this model better supported the students with weekly and course learning outcomes. The majority of faculty respondents (70%) believed the new discussion had a positive impact on the students, and 80% felt that students were more deeply engaged using the new method. When asked about the workload, half of the faculty felt it had lightened the weekly discussion forum management, and 70% stated that grading was easier. Overall, 70% of the faculty preferred the redesigned discussion mainly because it allowed for in-depth conversation on one topic.

In light of these findings, we believe that more UAGC courses should implement similar discussion formatting. We will continue to adjust courses based on current findings regarding student engagement and success.

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The Independent Effect of Extracurricular Activity on Leadership

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The Independent Effect of Extracurricular Activity on Leadership

Abstract

This study explores how extracurricular organization experiences influence student leadership development. Two research areas are covered. First, the study examines the relationship between extracurricular involvement and leadership development outcomes demonstrated by the involvement experiences and index level. The involvement index is calculated by a combination of involved years and the level of participation. Second, the study analyzed how general characteristics, pre-collegiate, and collegiate experiences contribute to the college students' community values of leadership development. The examination of the effects of participating in extracurricular activities is important to this study because it helps to identify factors contributing to significant differences in leadership development.

Data were collected from college students (N=705) and analyzed using purposive sampling and analysis of variance (ANOVA) to determine the independent effect of extracurricular activity on leadership development. Also, the correlation and contribution to the college students' leadership were analyzed. This study focuses on the community values of the Social Change Model of Leadership Development. The community value of leadership development was assessed using the Socially Responsible Leadership Scale (SRLS-R2).

This study reveals the role of leading educators to help provide opportunities to develop and empower students to engage in and be effective in leadership that leads to positive social change. Educators can be provided a deeper understanding and insight for leading educational policy and leadership.

An analysis across studies relating to extracurricular activities reveals key predictors of student leadership development. Experiences in extracurricular or co-curricular activities improve student learning experiences and influence student leadership development (Foreman & Retallick, 2013; Komives et al., 2011; Martinez et al., 2020; Mcree & Haber-Curran, 2016). Additionally, researchers discovered a relationship between extracurricular participation and leadership outcomes (Foreman & Retallick, 2013; Hancock et al., 2012; Simonsen et al., 2014). However, little research has explored how collegiate experiences of extracurricular activity influence the outcomes of students' leadership development. These values represent a student's leadership knowledge and capacity, and as a whole, contribute to community change for the common good. Social change can be facilitated through the purpose-driven, collaborative, value-based approach to leadership (Foreman & Retallick, 2013; Martinez et al., 2020).

The conceptual framework for this study focuses on college student leadership development by utilizing student development theory. College students can increase their leadership skills during their college years (Dugan, 2006; Pascarella & Terenzini, 2005; Sowcik & Komives 2020), and this increase can be attributed in part to collegiate involvement. The Social Change Model of Leadership Development provides the theoretical frame for this study because it was created specifically for college students and is consistent with the emerging leadership paradigm.

Purpose and Objective

The purpose of this study is to explore how extracurricular organization experiences influence student leadership development. Two research areas are covered. First, the study examines the relationship between extracurricular involvement and leadership development

outcomes demonstrated by the involvement experiences and index level. Involvement experiences of extracurricular activity regarding quantitative (e.g., amount of time spent, number of extracurricular clubs) and qualitative (e.g., the highest level of participation) aspects are indicated by the differences in the mean of community values of leadership development outcomes. The involvement index is calculated by a combination of involved years and the level of participation. Second, the study analyzed how general characteristics, pre-collegiate, and collegiate experiences contribute to the college students' community values of leadership development. The examination of the effects of participating in extracurricular activities is important to this study because it helps to identify factors contributing to significant differences in leadership development.

Review of Literature

Researchers found many dependent variables that were positively linked to involvement in extracurricular clubs and organizations. Rubin et al. (2002) studied the relationship between involvement in extracurricular activities and interpersonal skills (e.g., oral communication, decision making, teamwork, conflict resolution, and initiative) and found that undergraduates who were involved in extracurricular activities had higher measures of interpersonal skills than those who did not participate. Involvement in extracurricular activities has been associated with several positive adolescent outcomes. For instance, adolescents involved in school and community-based civic activities reported more religiosity, academic engagement, and positive perceptions of parents and peers (Ludden, 2011). Moreover, Hancock et al. (2012) specifically examined adolescents' participation in sports, school, and community extracurricular activities.

Foreman and Retallick (2013) explored leadership scores that were influenced by

the number of organizations a student was involved in and the leadership role they took. They suggested that involvement in three to four organizations is optimal. Foreman and Retallick (2016) indicated that community values of leadership development outcomes had a strong relationship with extracurricular activities involvement.

Researchers have examined the role of quantitative involvement related to extracurricular experience, including “the number of clubs, which students participated, meeting participation and the number of hours students spent participating in club and organizations” (Foreman & Retallick, 2013, p 59). The more time students spend in structured extracurricular activities, the less time they have to become involved in unsupervised activities. However, Mahoney et al. (2006) indicated that over-scheduling extracurricular activities can result in a poor adjustment, higher stress, less time spent with family.

Leadership skills enable students to interact effectively and harmoniously with other people (Lippman et al., 2015). Research suggests that interaction between students has positive effects on leadership development, academic success, and critical thinking. Collegiate venues where students can learn and enhance their leadership skills include student service programs, collegiate organizations, and service-learning projects. For instance, Seemiller (2006) asserted that participation in a service-learning project encourages students to create effective social change. Engbears (2006) also noted a significant increase in leadership development programs across college campuses and ties this finding to a need for effective leadership development in preparing tomorrow’s leaders and, ultimately, the importance of leadership in society.

Student experiences are important because student engagement in educationally purposeful activities has desirable effects on student learning and success during college (Kuh

&Pike, 2005). According to Dugan & Komives (2010), students should be taught how to engage in meaningful dialogue across differences and to purposefully create opportunities to do so in the context of leadership education. The degree to which students interact with and are mentored by faculty is also positively related to overall leadership capacity. Komives et al. (2011) argued that the community service and leadership development offices on campus operate separately from one another. They suggested that connections concerning leadership, social justice, and social activism need to be made. Infusion of service-based experiences into courses and training programs has also been recommended.

Several researchers examined learning experiences and leadership development (Ewing et al., 2009; Dugan 2006; Foreman & Retallick, 2013; Hancock et al., 2012; Martinez et al., 2020). General engagement in the collegiate environment and specifically, involvement as members of clubs and organizations are positively associated with leadership capacity and efficacy (Dugan & Komives,2010; Komives et al., 2011; Leupold et al., 2020). Lois and John's (2015) research demonstrated that students' perceptions of their activities influenced leadership skills. The results disclosed that students involved in extracurricular activities had more positive self-perceptions of leadership characteristics than students who were not engaged in activities. Komives et al. (2011) suggested that higher education should infuse high-impact learning strategies in their mission, including service-learning, efficacy-building experiences, and group involvement opportunities.

Methodology

The target population of this study is undergraduate college students enrolled in three universities: a regional university, a private liberal arts college, or a research-intensive university. To learn more about the students' extracurricular experiences, a purposive

sampling technique was used. As a non-probability sampling method, Black (2010) suggested that the purposive sampling method allows the researcher freedom to choose a purpose for the sample. Thus, we chose to survey students who were upperclassmen and with more opportunities to be involved in extracurricular activities.

Contact email information for these students was received from the university registrar's office, institutional research center, the office of international student services, and the multicultural students' office. College students responded to a web-based questionnaire. After eliminating incomplete data and response set errors, 705 data responses were analyzed.

Data Analyses

Survey responses were automatically recorded by *Qualtrics* as subjects completed the survey. Once data collection was completed, raw data were checked for missing data and obvious errors. Incomplete data and response set errors were documented and eliminated from the dataset. The SPSS (Version 24) program was used to analyze the data.

To examine the quantitative and qualitative aspects of involvement experiences in extracurricular clubs and organizations and those relationships with community values of leadership development, inferential statistics were calculated to determine if there were mean differences in the dependent variable based on the independent variables. The number of clubs and organizations students participated in was based on self-reporting.

Moreover, the extracurricular involvement index was calculated by adding the number of years students indicated they were involved in extracurricular activities as well as their highest level of involvement in that activity (ranging from member = 1 to state or national leadership = 5). To measure the relationship between this construct and leadership development, the involvement score was categorized into three-level groups and used as the

independent variable. An ANOVA was calculated using the involvement index as the independent variable and the community leadership scale as the dependent variable.

Hierarchical regression was the primary statistical technique. Variable blocking reflected the conceptual framework and influenced past research. Two independent blocks were used to compare the effects of independent variables. This first block containing general characteristics and pre-collegiate experiences (i.e., gender, student type, pre-collegiate extracurricular involvement, pre-collegiate leadership training, and leadership self-perception) explained the percentage of the variance of the dependent variable community values. Block two included extracurricular experiences from the portion of the collegiate experience of the model. The dependent variable, leadership development, was the outcome construct. The second block, containing collegiate experiences (i.e., extracurricular involvement, leadership training, internships, and activity with international students) indicated the explained variance by percentage for the model.

Results

The extracurricular involvement index was calculated by adding the number of years a student indicated they were involved in a specific extracurricular activity, their highest level of involvement in that activity while in college and high school, and leadership self-perception. To measure the relationship between this construct and leadership development outcomes measured by the SRLS-R2 scale, the involvement score was categorized into three approximately equal groups and used as the independent variable.

When it came to community values total, there was no significant difference ($p > .05$, table 1). However, citizenship showed a significant difference ($p < .05$). In other words, it could be seen that when students' involvement index level was high, their citizenship scored high in leadership development (SRLS-R2), and those who had middle or low involvement levels scored relatively

low.

Table 1.
Differences in Leadership Development by Involvement Index Level

		N	M	S.D	F	p	Scheffe
Citizenship	low(a)	203	4.02	.59	8.872***	.000	c>a,b
	middle(b)	299	4.06	.52			
	high(c)	203	4.23	.50			
	Total	705	4.10	.54			
Change	low	203	3.83	.49	.344	.709	
	middle	299	3.80	.50			
	high	203	3.82	.53			
	Total	705	3.81	.50			
community values Total	low	203	3.92	.47	2.696	.068	
	middle	299	3.91	.45			
	high	203	4.00	.45			
	Total	705	3.94	.46			

* $p < .05$, ** $p < .01$, *** $p < .001$

Using regression analysis, self-perception had a positive significant effect. When the self-perception of leadership skills is high, the total community values increase. Leadership perception is the only significant predictor of community values of leadership development outcomes. Also, leadership perception was positively related to community values.

Model 1 was significant collectively. All seven variables entered allowed model 1 to predict community values of leadership development ($F=2.469$, $P<.05$, $R^2=.146$). Seven predictor variables account for 14.6% of the variance in the community values of leadership development. The same trend was seen in Model 2 ($F=1.980$, $P<.05$, $R^2=.163$) and the entered five predictor variables account for 16.3% of the variance in the community values of leadership development (SRLS-R2). As a result of input variables in Model 1, it can be seen that self-perception ($\beta = .151$) had a significant positive effect ($p<.05$). When the self-perception of leadership skills is high, the total community values increases. It can be seen that there are no significant variables in Model 2.

Conclusions and Recommendations

As colleges and universities continue to emphasize the importance of leadership development in college students, and as the need for assessment and accountability grows, a great need exists to understand students' leadership development and the experiences that contribute. This study revealed a significant relationship between extracurricular activity and leadership development. It also indicated how extracurricular involvement contributed to college students' leadership development relating to community values from the Socially Responsible Leadership Scale. The main findings are as follows: First, extracurricular involvement affects leadership development outcomes. The results indicated that when students were actively involved in extracurricular activities with five or more organizations, they had relatively higher leadership outcomes than students who had no involvement. Students who spent five or more years in extracurricular organizations had higher leadership outcomes than other groups. Furthermore, students who served at the state or national leadership level or were officers scored relatively higher than the ordinary members. Therefore, the increased skills often attributed to the involvement level might possibly be associated with the additional training that officers receive. Additional research is needed to make this determination.

Second, self-perception of leadership skill was a significant predictor of community values of leadership development outcomes, and it was positively related. As students' leadership perception increases, the community values increase. There may be opportunities for teachers, advisors, mentors, and coaches to enhance student perceptions of their own leadership abilities. Engaging with peers and others in organizational settings might provide an opportunity to examine self-perception in the context of others and promote self-leadership

development. Therefore, educators need to encourage students to engage in extracurricular activities to help develop students' leadership self-perception.

Extracurricular activities are a great way for college students to showcase their leadership development. It is imperative for college administrators to create a system to demonstrate the relationship of extracurricular activities to student leadership development. Based on the findings of this study, educators might pay attention to students' extended participation in organizations and taking state and national leadership roles. These active involvements are likely to yield citizenship growth and leadership development for meaningful social change.

Therefore, educators should reevaluate the influence extracurricular activities have on student leadership development outcomes and provide intentional programs and services that create a meaningful experience for all students involved. It is up to education leaders to continue encouraging student's involvement in extracurricular activities and create meaningful experiences that enhance their success during and after college.

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1. Title: Empowering School Districts as Active Participants in Teacher Training: Lessons Learned from the Student Teaching Experience during COVID-19 Pandemic

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3. Abstract/Paper:

Often in conversation about education, there is focus on the future: education is the future and the children are the future. Born of a mutual understanding that educators have collective responsibility to guard that future is the validation that the work has deeper meaning and consequence. The COVID-19 pandemic changed our vision of the future to an elusive one. Arguably, right up until early in 2020, teachers and school leaders may have had a good idea of what future classrooms might look like. Educators may have thought they were doing things well of course with some recognition that there were certainly areas of opportunity and improvement. For the most part however, educators were doing what they could with what was available. Then, as if from one day to the next, they did not have any of *that* sense anymore.

School closures meant classrooms were inaccessible, or as the saying goes, “our legs were cut off from under us.” Social/physical distancing meant teachers could not use the familiar ways to lean in and individualize or differentiate for their students. It meant there was no opportunity to sit together at a table to collaborate with peers and colleagues. When those school doors were closed and locked, students were restricted from accessing their safe space.

Considering the massive personal and professional investment in the school, teachers and administrators could arguably say the same: their safe spaces were gone, too. Schools are places of learning, yes, but they are also places for social engagement, personal discovery, experience, and growth. As such, there is also another group that felt a crushing blow because of school closures: student teachers.

The student teaching experience is well-researched as the most vital component of the teacher preparation sequence (Darling-Hammond, 2006; Varela, Kupczynski & Mundy, 2019), providing preservice teacher candidates with real-time and real-life opportunities to practice the art of teaching with real students in a real classroom. It is during the student teaching experience that preservice teachers find and build upon their professional identity. A recent study (Varela & Desiderio, 2020) found that in the spring of 2020, preservice teacher candidates who were eyeing the graduation finish line and the potential promise of their very own classroom seemed in jeopardy because of the interruption of the clinical experience that would get them there. For this group, school closures meant many no longer had a place to learn and practice the art of teaching either. Their cooperating teachers were themselves trying to make sense of their own next steps. The students in their assigned clinical teaching placements were now gone from the physical space and present (to the extent possible) only in the virtual world. Many school districts were unable to include student teachers in transition planning and were unable to provide remote instruction resources that required access to confidential student records. Because of social distancing requirements, most administrators allowed only official staff on their campuses to prepare worksheet packets, provide curbside meal services, and other emergency conversion work, leaving most student teachers out of the mix.

In a study of student teachers' perceptions of the Spring 2020 student teaching experience as impacted by the COVID-19 pandemic, one respondent self-described as among "the forgotten ones, the ones left with nowhere to go, nowhere to learn or grow, and nowhere to belong" (Varela & Desiderio, 2020). Spring 2020 student teachers reported feelings of loss, incompleteness, and restriction, all during a training period that should otherwise have been gainful, robust, comprehensive, and immersive. They commented on the "sense of being robbed of [their] experience," and expressed worry that they "wonder whether [they] will be as well prepared as other previous student teachers" (Varela & Desiderio, 2020).

The impact of the COVID-19 pandemic on the education system now has the eye of countless researchers. The pandemic did not create student inequities: it exposed them and, rightfully so, forced them to the forefront of focus. The pandemic created a multitude of opportunities for reflection of practice, policy, and planning, and invention. It forced the education system to look beyond how things were always been done in order to plan better for how things must be done. The hard truth is that there is no room for reliance on a return to normal. In fact, there is no room for reliance on a return to the *new* normal, either. In this critical moment is the chance to look ahead and create a future that is proactive, rather than reactive. For student teachers, this means educator preparation programs and school districts have an immense responsibility to collaboratively plan for the future of the teacher workforce.

Understanding the experiences of student teachers during the onset of the COVID-19 pandemic means educator preparation stakeholders are equipped with the information necessary to effectively update and redesign the clinical teaching experience. This group of stakeholders includes school district administrators, campus leaders, and classroom teachers, all who play an integral part in the practical and professional development of future educators, and all who

directly felt the impact of the pandemic in their schools. At a time when programs are working to revamp teacher training, cooperating schools have a unique opportunity to lobby for voice in the decision-making process.

It becomes imperative that there be a mutual understanding about what must be in place to serve high-quality teacher development, especially as all look ahead toward education's new era. Thus, the following recommendations serve to empower cooperating school districts with strategies for improved equity and inclusion in teacher training. The recommendations stem from qualitative research conducted on the experiences of student teachers in clinical teaching assignments at the start of the pandemic in the year 2020 and an introspective analysis of an educator preparation program/school district partnership. They are the result of lessons learned and offer themselves as opportunities for what school districts can do to significantly impact on the future of teacher preparation.

Partnerships

Educator preparation programs require strong partnerships with local schools and the educational communities they serve (Varela, Villarreal & Bain, 2020). These partnerships help in the cyclical process of training high quality educators for the workforce: local schools serve as feeders to the educator preparation program, and then educator preparation programs serve as feeders to the teaching workforce. It befits both the PreK-12 school system and teacher preparation programs equally to work in collaborative unison. In fact, Vagi, Pivovarova, and Barnard (2019) found that the more qualified and better prepared student teachers are, the more likely they are to have long-standing careers in the profession, a potential key to addressing high rates of teacher attrition. At the very root, educator preparation programs *need* cooperating school districts not just for function but also for purpose. Richmond (2016) succinctly spoke to

the critical value of mutual reliance in the form of partnerships, when he stated "... the more we can involve community partners who on a daily basis are more involved with the ongoing issues of the community and the lives of its members, the more likely we are to be able to prepare those who are committed to, and prepared for, the contexts in which they will be teaching" (p. 8).

Cooperating school districts must ask for a seat at the table to offer voice for the professional K-12 educators who help establish the relevant terms that collaboratively and positively influence the teacher training experience. Just as student teachers can offer new insight into the clinical experience in these unprecedented times, school districts must speak with truth of the struggle and the recovery process in response to COVID-19 pandemic impacts at their local levels. Strong partnerships require effective, two-way communication. Interactions must be data-informed, open, and honest. This requires shared resources. Student teachers are doing the work of the link between theory and practice. In the presence of a strong partnership, field and clinical teaching experiences can be robust, immersive, and mutually beneficial to the cooperating school district, but only if the school district creates and/or seizes opportunities to define those needs. In the absence of those partnerships *the forgotten ones (student teachers)*, are the future of the teacher workforce.

Access

In accordance with strong partnerships, and in an effort to enable those robust and comprehensive learning opportunities for the future of the teaching workforce, access is necessary. School districts were certainly not immune to the anomalies that manifested themselves because of the pandemic. Many would be justified if to say that school districts bore the brunt of educational anomalies. Still as evidenced in Varela and Desiderio (2020), preservice teachers missed a critical and inimitable teachable moment because of lack of access.

Student teachers need and deserve transparency of the inner-workings; the behind the scenes work that is crucial to effective school function and positive school culture. It is highly likely that the current design of the student teaching experience means preservice teachers are present as drop-off, pick up, lunch, and recess. Student teachers need to sit in on faculty meetings. Much more is even called for. Student teachers must be embraced as members of the team, payroll or not. The student teaching experience is more than a requirement; it is the time and place for growth and becoming. Thus, access to those opportunities cannot be required for only hired professional educators.

In many ways, pre-pandemic teacher training is of little consequence now. Thus to the extent possible, cooperating school districts, with the assistance and guidance of educator preparation programs, must find permissible ways to afford preservice teachers access to the future. Specifically in anticipation of education's new era, cooperating school districts must work to provide opportunities for preservice teachers with exposure to and practice with innovative technologies for online teaching experiences (Hartshorne, et al., 2020). Student teachers *should* have an email address that makes their status official with the assigned school district and campus. Especially in times of crisis (and especially in times of crisis with no playbook) student teachers must be afforded opportunities to engage in the crisis management process—to brainstorm, collaborate, negotiate, innovate, advocate, and to resolve.

Mentorship

Programs and districts must collaborate to design meaningful field observations and clinical experiences to the extent that teacher candidates are better able to know and understand the realities of the classroom and community; to see, practice, and reflect on the various instructional strategies needed to affect increases in student learning. Mentor teachers, often

called cooperating teachers in student teacher assignments, play a crucial role in that success. In fact, research finds that when mentor teachers model effective instruction and provide instructional support, and when mentor teachers provide timely and frequent feedback, preservice teachers feel better prepared to take on their own classrooms (Matsko, et al., 2020).

Unfortunately, what often happens however is as result of time or resources, or both. Many cooperating teachers receive student teachers based more on their willingness, availability, or their need for help rather than on suitability. There is a need to strategically identify, train, and support cooperating/mentor teachers to effect high quality teacher development. Thus, school districts, in collaboration with the partnered educator preparation programs, are encouraged to create structured and formalized systems for selecting and training mentor teachers to work with student teachers. Cooperating teachers not only advance the goals of the educator preparation programs, but also provide a positive and productive mentoring experience. Mentor selection must adhere to the research-based evidence about “what qualities, dispositions, or practices make for successful mentoring relationships between in-service teachers and preservice teachers” (Biggers, Miller, Zangori, & Whitworth, 2019, p. 354).

Above All, Grace.

Remember that you were once in their shoes, and recognize that going forward, those shoes are going to be completely new. Normal is obsolete. We have entered a new world and a new era of education. Student teachers will be the guides in this new future. Supporting the future of the teacher workforce is imperative to ensuring that the current public health crisis does not become a generational education crisis. Student teachers can be an asset during clinical teaching experiences (Mason-Williams, et al., 2020). If given the right opportunities of strong

partnerships, access, and high-quality mentorship, student teachers will develop into highly effective, long-career educators.

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The Pedagogical Use of Music in the Political Movement of Evangelicals in
the United States

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This paper examines the ways in which music played a role in the conservative ascendancy that led to the prominence of the Religious Right in the 1970s and 1980s in the United States. It places a particular focus on the emergence of Contemporary Christian Music (CCM) and examines the ways in which the music was used to teach, spread, and debate the religious/political messages of evangelical Christians as their political presence was on the rise. (I use the term “pedagogical” broadly to include the act of teaching and conveying messages to others outside of classroom settings and educational institutions.) It also examines the history of folk and rock music that became the musical basis of CCM and shows that the evangelicals coopted not only the musical forms of these genres but also, particularly in the case of folk music, the appeal of the music as authentic and inclusive, to

express their agenda which was contrary to what the participants in the folk revival advocated. They also whitened the music, which was aided by the fact that folk music had already come to be associated with middle-class white Americans during the folk revival and rock became mainstream music performed by predominantly white musicians in the secular world at the time. John Haines argued that Jesus Rock, the precursor to CCM, played an instrumental role in “taming the ‘African beat’” and thereby making rock music less subversive and devoid of rock ‘n’ roll’s negative associations that stemmed from racism.¹ This paper extends this argument and contends that the evangelical cooptation of rock music served to rebrand the music as white and make the music a vehicle for asserting white-centered conservative positions. This paper attempts to shed light on the relationship between the emergence and development of CCM and the rise of the evangelicals as an influential political power through analyses of contemporary coverage and accounts as well as published sources.

Evangelicalism, Rock ‘n’ Roll, and Racial Anxiety

Evangelical Christians became a strong basis of grassroots

¹ John Haines, “The Emergence of Jesus Rock: On Taming the ‘African Beat,’” *Black Music Research Journal* 31, no.2 (Fall 2011): 229-260.

conservative movements in the 1960s and became a visible voting block in the 1970s as the Religious Right. Unlike the conservative movements of the previous generation, which centered on anti-communism, evangelical activists focused on moral and cultural issues and utilized the latest technologies and media to reach out to the secular world.² Rock and popular music was among the tools that they utilized.

CCM developed from Jesus Music, which arose from the Jesus Movement of the late 1960s and early 1970s, in which hippies converted to evangelical Christianity in large numbers in Southern California and other parts of the U.S. As Larry Norman sang in his song, “Why Should the Devil Have All the Good Music?” (1972), contemporary Christian music appropriated folk and rock music, which had been associated with the counterculture and was perceived as antithetical to Christian values. CCM developed its appeal to mainstream popular music audience in the 1980s while being met with skepticism and resistance from the establishment in the Christian community.³ As Jay R. Howard and John M. Streck extensively

² For the political rise of evangelicals, see Lisa McGirr, *Suburban Warriors: The Origins of the New American Right* (Princeton University Press, 2002); Monique El-Faizy, *God and Country: How Evangelicals Have Become America’s New Mainstream* (Bloomsbury USA, 2008).

³ For the history of Jesus People, see Larry Eskridge, *God’s Forever Family: The Jesus People Movement in America* (New York: Oxford University Press, 2013); Richard A. Bustraan, *The Jesus People Movement: A Story of Spiritual Revolution Among the Hippies* (Pickwick Publications, 2014);

documented and analyzed in their book, *Apostles of Rock*, artists and critics in the CCM industry struggled with the idea of incorporating commercial popular music into music that worshipped God. Even though rock 'n' roll had originated in part from gospel, the two music genres diverged soon after the emergence of rock 'n' roll and rock 'n' roll was considered immoral music inappropriate for religious use.⁴

Debates over the incorporation of secular popular musical forms into Christian music parallel those found in black gospel music. Thomas Dorsey's "Gospel blues" that incorporated blues and jazz elements into gospel in the 1930s, in addition to his selling his works as sheet music, were met with criticism.⁵ Gospel music was eventually widely accepted in African American churches and became the basis for freedom songs during the civil rights

Preston Shires, *Hippies of the Religious Right* (Baylor University Press, 2020). For Jesus Music, see Paul Baker, *Contemporary Christian Music: Where It Came From, What It Is, and Where It's Going* (Good News, 1985); Gregory Alan Thornbury, *Why Should the Devil Have All the Good Music: Larry Norman and the Perils of Christian Rock* (New York: Convergent, 2018); David W. Stowe, *No Sympathy for the Devil: Christian Pop Music and the Transformation of American Evangelicalism* (University of North Carolina Press, 2011); Jay R. Howard and John M. Streck, *Apostles of Rock: The Splintered World of Contemporary Christian Music* (Lexington: The University Press of Kentucky, 1999).

⁴ Howard and Streck, *Apostles of Rock*, 26-28.

⁵ Robert Darden, *People Get Ready: A New History of Black Gospel Music* (New York: Continuum, 2004), 164-172; James M. Vardaman and Tetsuhiko Satonaka, *Hajimete no Amerika Ongaku-shi [The History of American Music for Beginners]* (Tokyo: Chikuma Shinsho, 2018), chap. 2, Kindle.

movement. Such gospel singers as Dorothy Love Coates and Julius Cheeks showed strong support for the civil rights movement.⁶

At the root of the early resistance toward rock music was racial and sexual anxiety. Rhythm and blues, which was African American secular music which had previously been called “race music,” was rechristened “rock ‘n’ roll” to market the emerging white teenage audience who preferred the African American music to mainstream popular music in the 1950s.⁷ The interracial nature of the music, combined with its sexual overtone, antagonized white adults. As Randall Stephens noted, “between 1955 and 1959, commentators hoped to reveal the savage, twisted roots of this music. They did so with massive resistance to the 1954 *Brown v. Board of Education* Supreme Court decision as a backdrop.”⁸ Rock ‘n’ roll was tied in the minds of the white supremacists to racial mixing, which they feared most.

John Haines argues that Jesus Rock and the subsequent “institutional-sounding” CCM “tamed” the “African beat” of rock ‘n’ roll and saved the music from racist criticism for its supposed African origin and

⁶ Darden, *People Get Ready!*, 252-253.

⁷ Larry Starr and Christopher Waterman, *American Popular Music: From Minstrelsy to MTV* (New York: Oxford University Press, 2003), 192.

⁸ Randall J. Stephens, *The Devil’s Music: How Christians Inspired, Condemned, and Embraced Rock ‘n’ Roll* (Cambridge, MA: Harvard University Press, 2018), 72.

danceability while maintaining the actual musical characteristics. “Rather than changing the sound, Jesus Rock changed the debate—away from rock music and its ‘African beat’ to rock music’s usefulness as an evangelistic tool.⁹ In other words, Jesus Rock and the subsequent CCM, which abandoned the word “rock,” served to sever the music’s African American associations and rebrand the music as white. Haines also noted that the emergence of Jesus Rock and its development into CCM related to and coincided with the rise of Evangelicalism among whites in the 1960s, which developed from “a parochial phenomenon into a global and politicized force” during this period.¹⁰ Even as rock music gained new acceptance among evangelicals in the 1960s, criticism toward the music did not completely disappear. It shifted away from the inherent immorality of the music itself to the immorality that the music supposedly helped promote.¹¹ Also, in the 1960s, the blatantly racist attack on rock ‘n’ roll gave way to one that focused on the issue of “lifestyle” characterized by promiscuous sex and the use of drugs that the music supposedly embodied.¹² This line of criticism that rock music inevitably promotes immoral behaviors persisted as late as in the 2000s. For example,

⁹ Haines, “The Emergence of Jesus Rock,” 230-231.

¹⁰ Haines, “The Emergence of Jesus Rock,” 231.

¹¹ Howard and Streck, *Apostle of Rock*, 35-36.

¹² Howard and Streck, *Apostles of Rock*, 28.

Dan Lucarini, in his book, *Why I Left the Contemporary Christian Music Movement*, bases his opposition to rock music on its sexual association.

Lucarini writes:

The name “rock and roll” originated from a slang phrase for having sex. Rock music is the overwhelming preference of the sexually immoral, of wild parties, of the strip joints, of drunks, and of drug abusers. [...] Rock music and its offspring have the power to make our flesh and our minds do something. That “something” must be conducive to the list of immoral behaviours we have just noted.¹³

As a baby-boomer who once was involved in rock music and CCM, as the title indicates, Lucarini came to understand that musical forms mattered and that with its “heavy, syncopated beat,” rock along with its musical derivatives “corrupt Christians” even with moral, Christian lyrics.¹⁴ There is no mention of race in this line of argument, but it is a continuation from the old way of criticizing rock ‘n’ roll. Fundamentalists of the Religious Right such as Jerry Falwell and Bob Jones kept opposing to rock music even into the 1970s and 1980s, partly as a way to distinguish themselves from other Christians, without explicitly referencing race.¹⁵

The apparent lack of racial reference does not indicate the disappearance of racism in arguments. As Randall Balmer recently showed,

¹³ Dan Lucarini, *Why I Left the Contemporary Christian Music Movement: Confessions of a Former Worship Leader* (Charlotte, NC: Evangelical Press, 2002), 68.

¹⁴ Lucarini, *Why I Left*, 68-69.

¹⁵ Stephens, *The Devil's Music*, 191-193.

the true cause that initially motivated the Religious Right was not abortion but segregation. The Moral Majority was formed not in reaction to the *Roe v. Wade* decision of 1973, as popularly believed, but to the *Green v. Connally*, which upheld the new IRS policy of not granting federal tax exemption status to racially discriminatory private schools. In their defense of segregation, the leaders in the movement appealed to the idea of religious freedom and then adopted the issue of abortion as a presentable rallying cause.¹⁶ J. Russell Hawkins argued that segregation was ingrained in theology in the white South.¹⁷ Race was a primary factor in the development of the Religious Right and the evangelical movements that preceded it.

Explo '72 and the Evangelical Appropriation of Rock

As the popularity of rock 'n' roll rose, white evangelicals began to contain and coopt rock music instead of denouncing it. They began to Christianize rock 'n' roll around 1966 by attaching the word and image of Jesus to the music that was previously considered antithetical to

¹⁶ Randall Balmer, *Bad Faith: Race and the Rise of the Religious Right* (Grand Rapids, MI, William B. Eerdmans Publishing Company, 2021), 40-49.

¹⁷ J. Russell Hawkins, *The Bible Told Them So: How Southern Evangelicals Fought to Preserve White Supremacy* (New York: Oxford University Press, 2021).

Christianity.¹⁸ They reached out to Jesus People, hippies who converted to Christianity and envisioned a more countercultural image of Jesus, which Larry Norman portrayed in his song, and were receptive to this type of new music.¹⁹ With the popularity of rock music and the success of the Woodstock Festival in 1969, prominent evangelical leaders began to support rock music. Famous evangelical pastor Billy Graham, who had focused on preaching to the young and whose motto since the 1940s was Jesus, “mediated between Jesus and rock ‘n’ roll.”²⁰ He had initially denounced rock ‘n’ roll and preached that Elvis Presley symbolized the moral decline of the society, but eventually “adopted the language of the counterculture when speaking to teenagers and college students” and supported the use of rock and pop music in evangelicalism.²¹ Bill Bright, a former businessman who founded Campus Crusade for Christ, was another that promoted the use of rock and popular music in evangelical activities. They cooperated in planning the Jesus Explo ’72 in Dallas, Texas, an evangelistic youth conference and rock festival hosted by Bright’s Crusade. Explo ’72 “featured rock music, racial diversity, and inchoate theological ecumenism.”²² Hyped as a “Christian Woodstock,” it

¹⁸ Haines, “The Emergence of Jesus Rock,” 238.

¹⁹ Haines, “The Emergence of Jesus Rock,” 239.

²⁰ Haines, “The Emergence of Jesus Rock,” 243.

²¹ Stephens, *The Devil’s Music*, 12

²² John G. Turner, *Bill Bright and Campus Crusade for Christ: The*

attracted 80,000 participants and became the “watershed moment” in the history of evangelical movements.²³ It also “symbolized a conservative evangelical appropriation of the Jesus Movement: carefully planned, toned down, and commercialized.”²⁴ The success of Explo ’72 led to the similar overseas event two years later in Seoul, South Korea. This Explo ’74 was a huge success, as approximately 1 percent of the entire South Korean population attended the events.²⁵ Haines points out that the musical development that led to and includes Explo ’72 “took place in a predominantly white, European-based religious culture from which African Americans were largely excluded. One of the very few black Christian rock artists in the early 1970s, Andraé Crouch, recalled the racism prevalent in churches where he performed.”²⁶

According to John Turner, Richard Nixon attempted to use Explo ’72 for political purposes, which “foreshadowed the courtship between evangelicals and conservative politicians that accelerated in the mid-1970s.” Bright in fact wanted to invite Nixon to the event but was persuaded by his

Renewal of Evangelicalism in Postwar America (Chapel Hill, NC: University of North Carolina Press, 2008), 121.

²³ Turner, *Bill Bright and Campus Crusade for Christ*, 142; Haines, “The Emergence of Jesus Rock,” 250.

²⁴ Turner, *Bill Bright and Campus Crusade for Christ*, 143.

²⁵ Turner, *Bill Bright and Campus Crusade for Christ*, 151.

²⁶ Haines, “The Emergence of Jesus Rock,” 245.

associates not to.²⁷ Another account reports that Graham proposed the idea of inviting Nixon, who was a friend of his, to speak at the event, which Bright rejected.²⁸ In either case, the incident showed that the evangelical leaders who supported the thriving Christian rock scene were cognizant of its potential political power. Nixon in fact developed a close relationship with country musicians and the country music industry, which were increasingly becoming politicized.²⁹

Even though Nixon did not appear in person at the event, he sent a telegram, which was read to a cheering crowd.³⁰ According to Darren Dochuk, the political nature of Explo '72 was obvious. It was “orchestrated by and for conservative Republicans as they prepared for the elections that fall.”³¹ In fact, young “delegates” at the event preferred Nixon to McGovern by a margin of 5 to 1. They saluted military personnel and cheered Nixon’s message that a personal effort based on a religious belief to make oneself better was the

²⁷ Turner, *Bill Bright and Campus Crusade for Christ*, 141.

²⁸ Haines, “The Emergence of Jesus Rock,” 250.

²⁹ J. Lester Feder, “Song of the South: Country Music, Race, Region and the Politics of Culture 1920-1974” (PhD diss., University of California, Los Angeles, 2005); Mikiko Tachi, “Country Music and Presidential Politics in the Contemporary United States,” *Proceedings of the 17th Hawaii International Conference on Arts and Humanities* (2019), 360-387.

³⁰ Darren Dochuk, *From Bible Belt to Sunbelt: Plain-Folk Religion, Grassroots Politics, and the Rise of Evangelical Conservatism* (New York: W. W. Norton, 2010), 328.

³¹ Dochuk, *From Bible Belt to Sunbelt*, 327.

key to the betterment of society, a conservative position that stresses personal responsibility while implicitly negates governmental social programs and social movements.³² This message was echoed by an African American pastor from Los Angeles, E. V. Hill, who was introduced by Bright. Hill was also introduced in Graham's radio program that he was "a black man from Watts" who would chair South Central Los Angeles Crusade under the sponsorship of Graham's evangelistic association. Hill made an impassioned speech contending that people could solve such global problems as racial strife, war, poverty, and pollution by concentrating on saving their own souls instead of seeking governmental assistance.³³ The organizers of the event put forward an African American figure in expressing the political position of majority white conservative evangelicals. This religious and music event served as a platform where conservative political positions were propagated.

The Significance of the Folk Music Revival in CCM

While academic works on the development of CCM tend to focus on rock music and treat folk music as equivalent to watered-down rock 'n' roll or simply a precursor to rock music, I would contend that the folk music revival

³² Dochuk, *From Bible Belt to Sunbelt*, 327-328; Turner, *Bill Bright and the Campus Crusade for Christ*, 144.

³³ Dochuk, *From Sunbelt to Bible Belt*, 327-328.

of the late 1950s and the early 1960s also played an important role in the development of CCM. Evangelicals appropriated not only the musical form but also the values that the revival participants ascribed to folk music. Authenticity was key to the popularity of folk music during the folk music revival, which went hand in hand with the counterculture and the civil rights movement. As I showed in my earlier work, the three pillars of authenticity during the folk revival were anti-commercialism, political idealism, and cultural diversity tied to internationalism.³⁴ As noted earlier, Explo '72 ostensibly promoted racial diversity and put forth minority figures. Bright was active in spreading the organization overseas, with South Korea a successful case.

While the counterculture, the New Left, and other Sixties movements seem to be the opposite of the conservative evangelical movement, the young people who were attracted to the leftist movements had in common with those who got involved in conservative movements. As Turner noted, “students on the right and the left shared an alienation from mainstream American society and expressed similar yearnings for authenticity and

³⁴ Mikiko Tachi, “The Folk Music Revival Then and Now: Politics, Commercialism, and Authenticity in Folk Music Communities in the U.S. and Japan” (PhD diss., Brown University, 2009).

meaning.”³⁵ While participants in the revival promoted racial equality and diversity, the main proponents of the revival were white middle-class youth and the revival folk singers, as opposed to “source musicians,” who were non-white or working-class, were white and middle-class. This is expressed in the following description of the folk revival by Robert Cantwell:

Folk songs, and original songs conceived and performed as such, enjoyed an unprecedented commercial popularity, inspiring thousands of young middle-class men and women to learn songs, to accompany themselves on folk instruments, particularly guitar and banjo, to search out and lionize authentic folk musicians, and finally to dress, groom, speak, comport themselves, and even attempt to think in ways they believed compatible with the rural, ethnic, proletarian, and other marginal cultures to whom folksong was supposed to belong.³⁶

Particularly at the height of the commercial popularity of folk music in the early 1960s, folk singers were presented as white and middle-class as shown by such groups as the Kingston Trio, Peter Paul and Mary, and the Limelighters. The folk revival led to the resurgence of the popularity of rock music in the mid-1960s. The emphasis on authenticity and the perceived whiteness of folk music is common to evangelical music during this period.

Campus Crusade for Christ had a folk song group The New Folk who performed at college campuses. *Billboard* magazine reported their success in 1968 in an article titled “Youth Drive Through Youth Music.” Churches

³⁵ Turner, *Bill Bright and Campus Crusade for Christ*, 131.

³⁶ Robert Cantwell, *When We Were Good: The Folk Revival* (Harvard University Press, 1996), 2.

collaborated with record companies to form young Christian singing groups and spread songs to young people. New Folk was so successful that there were now a New Folk East and New Folk West added.³⁷ In an article announcing the upcoming New Folk concert, Illinois State University's *The Vidette* described the group as follows: "It has the smoothness of The Association, the intensity of Simon and Garfunkel, the impact of excitement of Sergil Mendez's Brazil 66, and the naturalness of a Glen Campbell." While thus comparing the group with preexisting folk-rock, soft-rock, and bossa nova musicians, the article also presented the New Folk as "new," as their name suggests, in terms of people, purpose, and "in-ness."³⁸

In a recording of the New Folk in Concert at Gordon College, an evangelical college, in May 1968, the group sang songs either a cappella or accompanied by guitars and banjo. The songs included such folk songs as "Feeling Groovy" and "If I Had My Way," which were sung by secular folk singers like Peter, Paul and Mary and Simon and Garfunkel.³⁹ They also had

³⁷ Claud Hall, "Youth Drive Through Youth Music," *Billboard*, October 12, 1968, 56.

³⁸ Keith Petrie, "Smooth 'New Folk' Coming," *The Vidette*, October 24, 1968, <https://videttearchive.ilstu.edu/?a=d&d=vid19681024-01&e=-----en-20-1--txt-txIN----->.

³⁹ "The New Folk in Concert 1968 Part 2 (Campus Crusade for Christ) ," accessed January 2, 2022, <https://www.youtube.com/watch?v=UsvT00ubOt8>; "The New Folk in Concert 1968 Part 1 (Campus Crusade for Christ) ," accessed January 2, 2022, <https://www.youtube.com/watch?v=rMehWPDJR78>

the appearance of innocent and wholesome young white college students. They dressed and appeared modestly—four women in dresses with coiffured hair and five clean shaven men with short hair and coat and a tie—and the group sang in close harmony without a rock beat. Just like folk singers would do, they talked between songs to sent a message to fellow students. Unlike folk singers, however, who would promote racial equality, peace, and justice, a New Folk singer talked about the importance of his faith.⁴⁰ While some song selections overlapped, the New Folk included “Dixie” in their program, a former minstrel song that symbolizes Southern white supremacy.⁴¹ This showed that while the New Folk appropriated the style and appearance of folk singers, they expressed opposite values.

The post-war evangelical movements in the U.S. and their use of music demonstrated the political nature of their activities as well as the malleability of the meaning of cultural products like music. Rock ‘n’ roll, which was the target of racist attacks, was appropriated by white evangelicals to express conservative politics. In the process, they rebranded what used to be the music of the Other as white Christian music. The folk music revival, which promoted cultural diversity and valued authenticity, provided

⁴⁰ “The New Folk in Concert 1968 Part 7 (Campus Crusade for Christ),” accessed January 2, 2022, <https://www.youtube.com/watch?v=·EZCH-ss680>.

⁴¹ “The New Folk in Concert 1968 Part 2.”

evangelicals with a tool to express their politically conservative beliefs.

**Professional Development in Higher Education: An Independent Research Study of
Teaching and Learning Centres**

Topic Area: Higher Education

Presentation Format: Poster Session

This poster will outline the approach taken towards the professional development of university teaching within higher education institutions. This poster will summarize the commonalities and differences between TLC approaches discovered in a study of ten public Canadian universities. It will then propose an approach on how additional university models can adopt successful methods that may serve to enhance student experience, education quality, and academic independence.

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Abstract

In this independent undergraduate study, research was conducted regarding the professional development in higher education across ten public Canadian universities. The purpose of this study was to discover any connections, themes, or opportunities discovered by comparing and contrasting professional development approaches at ten public Canadian universities. In order to complete the investigation, secondary data studies were undertaken surrounding the Teaching and Learning Centres at each institution. University websites accessible within the public domain were scrutinized and evaluated for themes, events, resources, and mission. The institutions and analytical framework used for the analysis were taken from a 2000 doctoral dissertation, with the knowledge of the author, and reevaluated for currency and sustained presence over the decades. The ten frameworks used were *program purpose*, *technical workshops*, *collaborative structures*, *reward system*, *the process of development*, *reflection*, *teaching scholarship*, *theory*, *evidence-based*, and *theoretical assumptions*. This methodology allowed the study to determine how public universities across Canada promote effective professional teaching development on their respective campuses. The study's major findings showcased that all ten universities strived to enhance student learning and experience by providing development opportunities for their faculty members, using collaboration, and encouraging consistent pedagogical modelling within the faculty members' professional development. These opportunities allowed participating and engaged faculty members to enhance their teaching methods and promote a positive learning environment for their students. The research study's findings identified changes, status quo, and growth in the current professional development program similar to the findings of the earlier dissertation. The study showed that ongoing professional development enhanced instructor effectiveness, enhanced student experience, and increased student engagement within the classroom. This study was able to determine some positive impacts of faculty engagement in teaching professional development and how the implementation of effective and practical teaching methods helped enhance the student experience, increasing excellence in higher education.

Effects of Online Support for Children attending School Infirmary By University Students

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In this study, one child, who had difficulty adjusting to the classroom, and a university student attempted a flexible conversation through a video conferencing system to understand the impact of remote interaction on children. She's having difficulty with her friendships, making it difficult for her to go to class and attend daily lessons. For this reason, she attends school in the nurse's office, a place that protects her physical and mental health, instead of the classroom. The analysis of the child's responses and behavior during the conversation showed that she began to show more interest in the classroom and other children over the course of the conversation. The possibility of using online conversations to engage children's interests and foster opportunities for them to express themselves, was also considered.

Keywords: distance education, education, elementary school, online conversation, early childhood education, classroom adjustment

Introduction

An increase in the number of children who do not attend school is a pressing educational issue worldwide (Ministry of Education, Culture, Sports, Science and Technology, 2020). Although, school non-attendance has also been considered a step toward social independence and not a behavioral problem. In many countries, home schooling and ICT-based education systems are practiced to support school non-attendance (Suleka et al., 2019). In Japan, however, the school infirmary system has been adopted.

The school infirmary is similar to a health center—it provides first aid to injured or unwell children and counseling to those with mental and physical health problems.

Children who have difficulty in adjusting to the classroom often use the school infirmary as a place of refuge. Additionally, children can have a school life that fits their individual characteristics through conversing and studying with “Yogo teachers.” A “Yogo teacher” is a specially licensed educator who supports children's growth and development through health education and services in all aspects of educational activities in school (Japanese Association of Yogo Teacher Education, 2003). However, because of their normal duties and the number of children who visit the infirmary, it is challenging for them to have continuous focus on each child individually.

Therefore, the purpose of this study is to provide remote assistance with the goal of clarifying the effect of conversation with university students on children who visit the school infirmary.

In providing support, we had to avoid face-to-face conversations due to effects of the COVID-19. In addition, the target child had difficulty in direct conversations with people. In this study, these problems can be solved using online tools. An example of such online support can be found in Australia. This is an example of the use of a prototype online tool designed for children with autism. The tool was used in the process of transitioning a child with autism to a school with specialized support.

As a result, teachers have “free time for themselves” and are able to use that time effectively. “Free time for themselves” refers to time outside of the teacher's own schoolwork. The online tool

facilitated the sharing of information among teachers, parents, medical institutions, and school supporters, and boosted support for the children. Therefore, online support could have a positive impact on both children and teachers.

Methods

The target is a sixth-grade elementary school student attending the school infirmary due to difficulties in making friends. Using Zoom Cloud Meetings, a video conferencing system, once a week for approximately 30 minutes of conversation from June 17, 2021 (Thursday) to July 13, 2021 (Tuesday), the changes in the number of absences from school life of the child before and after the support were compared (Figure 1).

Research instrument

The child was asked the questions presented in Table 1 in an online interview format. Additionally, to clarify the impact of the conversation on the child, we analyzed the changes in the child's responses and appearance in the conversation.



Figure 1: During a support session the student sits on a chair and has a conversation with a university student on the screen.

Table 1: Items for the interview survey

1	Understanding and Interest in Online system	Was it easy to operate the Zoom application?
2		What was the best thing about using Zoom?
3		What else do you want to do using Zoom?
4	Self Disclosure Fiduciary Relation	Did you enjoy communicating via Zoom?
5		Do you want to use Zoom to talk to other people?
6		What was the best thing about interacting with university students?
7		What was the most memorable part of the conversation?
8	Impressions of support	How did you feel before the Zoom conversation started?
9		Would you recommend using Zoom to your friends?
10		Thoughts on using Zoom to talk with university students.

Table 2: Conversation at the first meeting (Thursday, June 17, 2021)

<p>Student: What were you doing at school today? Child: (In doubt) Student: What time did you get to school? Child: Around eight o'clock. Student: You were early. Did you study? Child: Yes. Student: What subject did you learn? Child: Math and social studies. Student: Sounds good! What exactly did you do? Child: Math was fractions and social studies was history.</p>
--

Table 3: Conversation at the second meeting(Thursday, June 21, 2021)

<p>Student: What did you learn today? Child: Social studies, Japanese, and Arithmetic. The social studies class had a test. Student: Wow! How did the test go? Child: Not so well, I'm afraid. Student: Was it difficult? Child: Yes, it was. It was about the Yayoi period and the Jomon period. Student: I see. Did you get a question on earthenware or something? Child: I've heard of it! —Share photos of the difference between Jomon and Yayoi earthenware— Student: Here, can you see them? Child: I've seen this before.</p>
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Table 4: Conversation at the third meeting (Tuesday, June 29, 2021)

Student: Have you ever been to any other elementary school?
Child: Never been. But I want to. Where is your elementary school?
(Abbreviated)
Student: Actually, I often ride my bicycle to Kanagawa Prefecture.
Child: Really? Can you get there by bike? How long does it take?
(Abbreviated)
Child: By the way, what are you doing at home?
Student: I'm taking a college class from home today.
Child: Seriously? Can you take classes from home? Was it on Zoom?
Student: You're right. We usually talk and take a class with teachers on Zoom like this.
Child: That's cool. So, does that mean that there will be a lot of squares (frame showing participants) on the screen?
(Abbreviated)
Student: What are you going to study today?
Child: May be social studies, especially history, the Asuka period and Nara period.
Student: Oh, you're making progress. Do you know of Prince Shotoku?
Child: I've heard of him before. But I don't know much. What is he like?
Student: He is like a politician who sets the rules for our country. I wonder if he is the one who established the connection between China and Japan.
Child: I got it. I'll check my textbook. Did you know Prince Shotoku?
Student: That's good, let's check it! Of course, I knew him! I did some research on him back in elementary school.
Child: I see. Anyway, there was a time when the name was Kamakura.

Results

Regarding the verbal questions in Table 1, the answer to Question 4: "Did you enjoy the communication using Zoom?", was "Yes, I enjoyed." The answer to Question 9: "Would you recommend using Zoom to your friends?", was "Yes, I would." From these responses, it can be established that the target child wanted to recommend the support system to their friends.

Table 2 shows the conversation in the first session (Thursday, June 17, 2021). The child answered the questions in a few words, and the dialogue continued in a question-and-answer format.

Table 3 shows the conversation in the second session (Thursday, June 21, 2021). The passive conversation in the first session was replaced by questions that expanded the child's answers. The university student mainly developed the conversations and encouraged the child to express themselves. It was found that the child was able to express their thoughts and feelings through the university student's approach.

Table 4 shows the conversation in the third session (Tuesday, June 29, 2021). When a university student in the Faculty of Teacher Education brought up the topic of going to Kanagawa Prefecture via bicycle, the child felt encouraged to ask following questions. In this way, after the third support session, there was an increase in the number of questions from the child and in the number of words used to express their thoughts and feelings without active questioning from the university student. As we continued our conversation, the child was able to move on from monosyllabic answers and engage in a lively conversation.

Discussion

From the above results, we suggest that a flexible approach in conversation and observation of the other person's reactions can assist in making children feel more comfortable even in remote settings. Rather than the university student always leading the conversation, the child was able to express their own feelings and actively engage in the conversation. This may be a factor behind the child recommending the support sessions to others. Additionally, even in online conversations, as the number of sessions increases,

students may be able to express themselves in a manner similar to face-to-face interactions.

Conclusions

In this study, we analyzed the effect of conversation on children who have difficulty adjusting to the classroom by providing remote assistance with university students. Based on the findings, we suggested the possibility of online support sessions becoming a place where children can feel comfortable. In addition, as the number of times the child responded to the questions increased with each support session, they became more active in self-expression. Therefore, in online conversation, we believe it is necessary to provide a certain amount of support over time.

Additionally, even in question-and-answer type conversations such as the first dialogue (Wednesday, June 17, 2021) in Table 2, continuing the approach will lead to receiving a response from the child.

It can be argued that connecting these small responses to specific questions is a necessary element in children's self-disclosure.

In the future, we would like to continue to help students by providing them with study support. In addition, we plan to analyze the extent to which online connections between the classroom and the school infirmary can build relationships with other children, as well as examine the changes in children's motivation to attend school and learn.

Acknowledgements

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Study on Teacher-Education Undergraduates' Understanding of Programming Education in Japan through Comparative Analysis of Authorized Textbooks: Focusing on Fifth Grade Math and Sixth Grade Science

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In this study, we focused on the content of certified programmed learning textbooks for fifth-grade arithmetic and sixth-grade science classes. Teacher-education students were asked to compare and analyze specified chapters in these textbooks and to describe the differences and findings. Based on these findings, this study discusses the ideal form of training in programming education for teacher-education students. The study focused on textbooks of the fifth (from six publishers) and sixth grade (from six publishers) published in 2020. We showed undergraduate teacher-education students the chapters of the textbooks that contain programming education contents (i.e., “Circles and Polygons” in arithmetic and “Use of Electricity” in science). The students were asked the following two questions while comparing textbooks. Q1: Please describe, as much as you can, the differences you noticed in the content of the textbooks on programming education in “5th grade math.” Q2: Please describe, as much as you can, the differences you noticed in the content of the textbooks on programming education in “6th grade science.” All returned responses were converted into text, and the contents were characterized by co-occurrence network analysis using KH Coder3, a quantitative text analysis software. The results showed that the students noticed “differences in the types of programming processes” and “differences in the diagrams and illustrations used in the explanations.” However, no descriptions of the hardware used along with the programming texts, described in several textbooks for sixth-grade science, were found. This indicates the need for teacher-education students to pay attention to the type of hardware used by each textbook company.

Keywords: computer programming, education, elementary school, teacher-education student

Introduction

In the new Courses of Study, which came into effect in April 2020, programming education is now mandatory for all elementary school students. Nanba et al. (2018) pointed out that elementary school teachers need to therefore acquire theoretical and practical skills related to programming education during the training stage.

With the introduction of compulsory programming education, certified textbooks published in 2020 have implemented content related to programming education. Johmen et al. (2021) analyzed the content of textbooks on programming education and found that only textbooks for the fifth and sixth grades included learning activities in which students programmed using software. For this reason, we focused on the unit “Circles and Regular Polygons” in fifth-grade arithmetic and the unit “Use of Electricity” in sixth-grade science.

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The purpose of this study is to analyze the differences between the content of textbooks on programming education written in the approved textbooks for fifth-grade arithmetic and sixth-grade science by showing them to teacher-training students. Based on the findings, we discuss how programming education should be provided to teacher-training undergraduates.

Methods

The participants were 21 undergraduate teacher-education students in Tokyo specializing in information education in elementary school. We showed the students the chapters of the textbooks that contained programming education contents (Table 1) (i.e., “Circles and Polygons” in arithmetic and “Use of Electricity” in science). The students were asked the following two questions while comparing textbooks: Q1: Please describe, as much as you can, the differences you noticed in the content of the textbooks on programming education in “5th grade math.” Q2: Please describe, as much as you can, the differences you noticed in the content of the textbooks on programming education in “6th grade science.”

All returned responses were converted into text, and the contents were characterized by co-occurrence network analysis using KH Coder3, a quantitative text analysis software.

Table 1: List of textbooks and pages used for the survey

Publisher	Textbook Title	Subject	Pages
TOKYO SHOSEKI CO., LTD.	Tanoshii Sansu 5 th Grade 2nd Mathematics Volume	Mathematics	134
Dainippon Tosho Publishing Co., Ltd.	Tanoshii Sansu 5 th Grade	Mathematics	250,251
GAKKO TOSHO Co., Ltd.	Minna To Manabu Shogakko Sansu 5 th Grade 2nd Volume	Mathematics	144,145
KYOIKU-SHUPPAN Co., Ltd.	Shogaku Sansu 5 th Grade	Mathematics	228,229
SHINKOSHUPPANS HA KEIRINKAN CO., LTD	Wakuwaku Sansu 5 th Grade	Mathematics	236,237
NIHON BUNKYO SHUPPAN Co., Ltd.	Shogaku Sansu 5 th Grade 2nd Volume	Mathematics	160,161
TOKYO SHOSEKI CO., LTD.	Atarashii Rika 6 th Grade	Science	158,159,160,161
Dainippon Tosho Publishing Co., Ltd.	Tanoshii Rika A 6 th Grade	Science	176,177,178,179
GAKKO TOSHO Co., Ltd.	Minna To Manabu Shogakko Sans Rika 6 th Grade	Science	192,193,194,195
KYOIKU-SHUPPAN Co., Ltd.	Mirai Wo Hiraku Shogaku Rika 6 th Grade	Science	212,213
SHINSHU KYOUIKU SHUPPAN Co., Ltd.	Tanoshii Rika 6 th Grade	Science	166,167,168,169
SHINKOSHUPPANS HA KEIRINKAN CO., LTD	Wakuwaku Rika 6 th Grade	Science	180,181,182,183

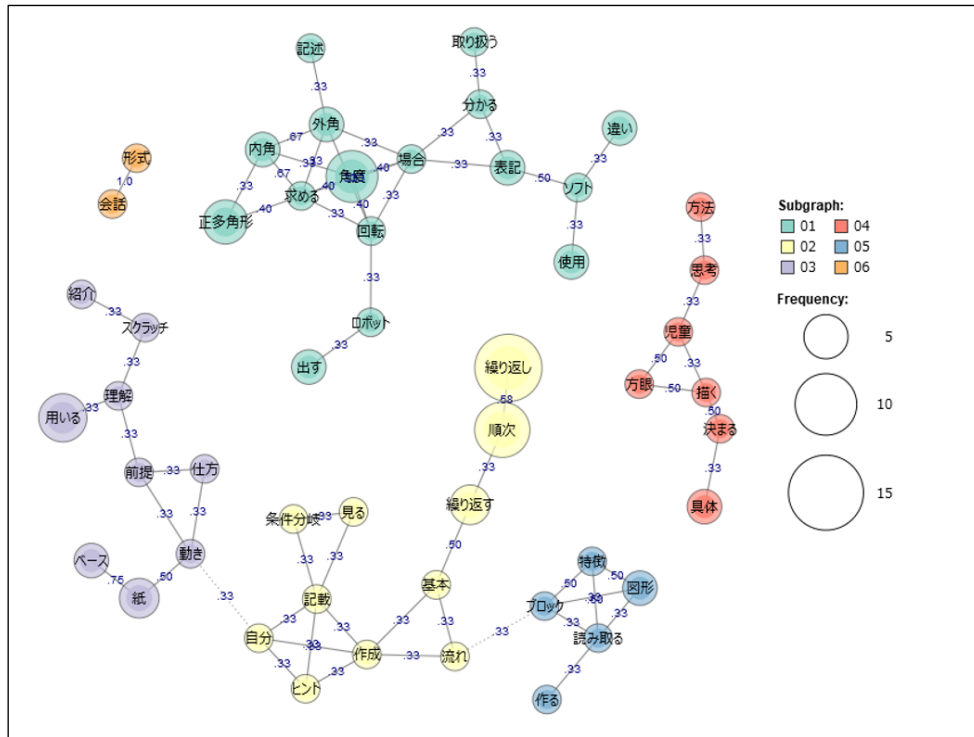


Figure 1: Results of analysis of responses to Q1 using co-occurrence network analysis (5th-grade math)

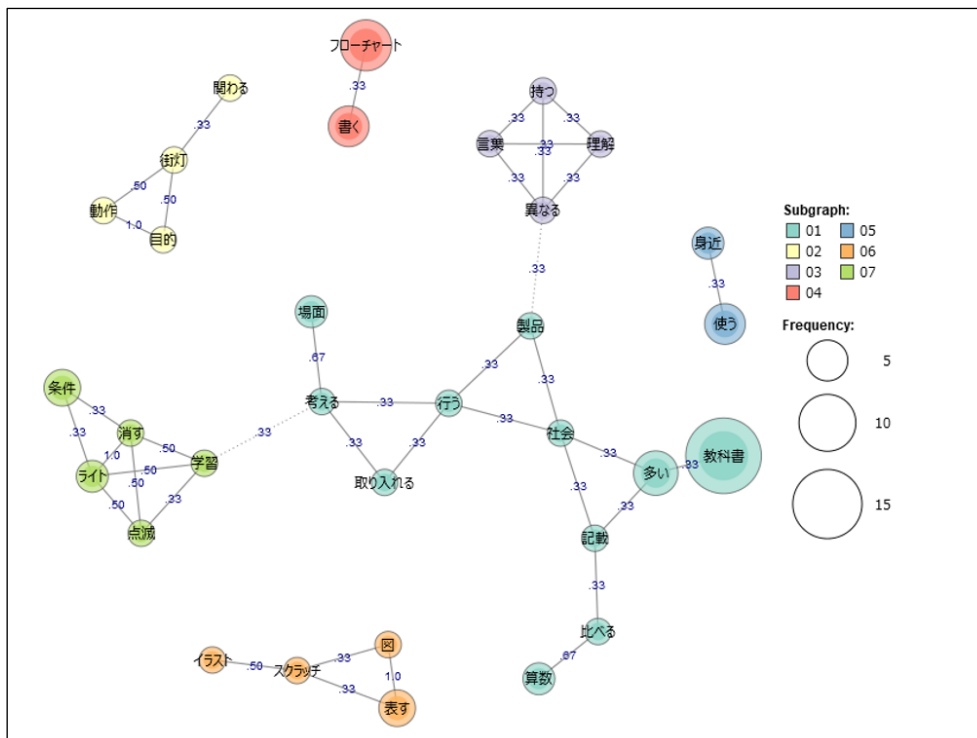


Figure 2: Results of analysis of responses to Q2 using co-occurrence network analysis (6th grade science)

Results

Figures 2 and 3 show the results of the co-occurrence network analysis of the free text for Q1 and Q2. To extract the characteristic words, in this study, the unit of aggregation was set to sentence, the minimum number of occurrences was set to two, and the Jaccard coefficient of the criterion to be displayed in the diagram of the co-occurrence network was set to 0.30. I explain the extracted categories by indicating them with numbers below.

First, I would like to explain the free description about fifth grade math in Q1.

In classification 01, there were 16 extracted terms, and the Jaccard coefficients for “internal angle” and “external angle” and “interior angle” and “demand” were both 0.67. In the free description, one sentence that read, “For regular polygons, the angle of rotation is not the ‘interior angle’ but the ‘exterior angle,’ but some textbooks have already provided the exterior angle. But some textbooks already gave the external angle.” We interpreted this to mean “there is a difference in whether the angle to be rotated when drawing a regular polygon is indicated by an interior angle or an exterior angle.”

In classification 02, there were 11 extracted terms, and the Jaccard coefficients for “sequential” and “repetition” were both 0.58. In the free description, one sentence read, “the idea of repetition was presented in some textbooks, whereas others dealt with it only sequentially.” We interpreted this to mean “there are differences in the types of programming processes such as sequential and repetitive processes.”

In classification 03, there were nine extracted terms, and the Jaccard coefficients for “paper” and “base” and “scratch” and “understanding” were 0.75 and 0.33. In the free description, one sentence read, “There is a difference in the method of explanation between those that assume the use of software and those that consider movement on a paper basis.” We interpreted this to mean “there is a difference between using software to explain programming and using paper-based explanations.”

In classification 04, there were seven extracted terms, and the Jaccard coefficients for “feature” and “read” and “feature” and “figure” were both 0.50. In the free description, one response read, “Some textbooks contained graph paper for children to write on, and some textbooks did not have graph paper at all. Some textbooks were written in line with students’ thinking, while others had little or no writing.” We interpreted this to mean “there is a difference in whether the textbooks used graph paper.”

In classification 05, there were five extracted terms, and the Jaccard coefficients for “feature” and “read” and “feature” and “figure” were both 0.50. In the free description, one sentence read, “There are textbooks that first consider which features the shapes have and then combine the programming blocks, and there are textbooks that run the program in the textbook once and then read the features of the shapes. There are two types of textbooks.” We interpreted this to mean “there is a difference in whether the activity of reading the characteristics of the figures is conducted when creating the program.”

In classification 06, there were two extracted terms, and the Jaccard coefficient for “conversation” and “form” was 1.00. In the free description, one sentence read, “Many of the stories were told while the characters were talking.” We interpreted this to mean “there is a difference in whether or the content is explained in a conversational style.”

Next, I will explain the free descriptions about sixth grade science in Q2.

In classification 01, there were 11 extracted terms, and the Jaccard coefficients for “product” and “society” and “description” and “society” were both 0.33. In the free description, one sentence read, “Many of the textbooks mentioned the benefits of programming and how it affects society, such as the use of programming to save electricity in familiar electrical products.” We interpreted this to mean “the textbook describes content related to familiar electrical products and their influence on society.”

In classification 02, there were four extracted terms, and the Jaccard coefficients for “streetlight” and “operation” and “streetlight” and “purpose” were both 0.50. In the free description, one sentence read, “Many textbooks explained that programming is closely related to familiar things such as streetlights and sensors.” We interpreted this to mean “many textbooks explain the relationship between the operation of electrical products such as streetlights and programming according to their purpose.”

In classification 03, there were four extracted terms, and the Jaccard coefficient for “words” and “understanding” was 0.33. In the free description, one sentence read, “Some of them use Scratch, and some of them offer explanations only with words.” We interpreted this to mean “there are differences between using software to explain the mechanism of programming and using only words to explain it.”

In classification 04, there were four extracted terms, and the Jaccard coefficient for “flowchart” and “writing” was 0.33. In the free description, one sentence read, “Some textbook companies use flowcharts

to represent programs while others use easy-to-understand diagrams.” We interpreted this to mean “there is a recognition of whether or not a flowchart was written in the textbook.”

In classification 05, there were two extracted terms, and the Jaccard coefficient for “familiar” and “use” was 0.33. In the free description, one sentence read, “Many textbooks explained that programming is closely related to familiar things such as streetlights and sensors.” We interpreted this to mean “there is a difference in whether programming was used in familiar things.”

In classification 06, there were four extracted terms, and the Jaccard coefficients for “scratch” and “illustration” and “diagram” and “scratch” were 0.50 and 0.33. In the free description, one sentence read: “Some textbooks used scratch illustrations, while others used original illustrations.” We interpreted this to mean “there was a difference in whether software diagrams and illustrations were used to explain programming.”

In classification 07, there were four extracted terms, and the Jaccard coefficients for “condition” and “light” and “condition” and “turn off” were both 0.33. In the free description, one sentence read, “There is a considerable difference in the level of difficulty between programs that only blink the lights, programs that turn the lights on and off based on one condition (sensor), and programs that turn the lights on and off based on two conditions.” We interpreted this to mean “using programs that blink lights or turn them off, depending on the conditions.”

In the free descriptions for Q1, we interpreted the answers to show the students noticed “differences in the programming processes described in each textbook, such as sequential and repetitive, in category 02.” In the free descriptions for Q2, we interpreted the answers to show that the students noticed in category 07 that “programs are used to make lights blink and turn them off depending on conditions.” From this, it can be interpreted that the teacher-training undergraduates noticed “differences in the types of programming processes described in each textbook.”

From the free descriptions on Q1, we interpreted that the students noticed “a difference between having students understand the movements of the programs on paper and having them understand them with software such as Scratch” in category 03. In the free descriptions on Q2, the results indicate that the students noticed a difference in category 07 that “programs are used to make lights blink and turn them off depending on conditions.” From this, it can be interpreted that the teacher-training undergraduates noticed “differences in the types of programming processes described in each textbook.”

From the free description on Q2, we interpreted that the students noticed “the contents are related to familiar electrical products and their effects on society” in category 01. In category 02, the students noticed that “the content describes the relationship between the operation of electrical products such as streetlights and programming according to their purpose.” From these responses, it can be interpreted that the teacher-training undergraduates noticed “the description of the relationship between familiar electrical products such as streetlights and programming.”

However, there was no description of the difference between the hardware materials in the sixth-grade science textbooks among all the free descriptions in Q2. In the unit “Use of Electricity” in sixth-grade science textbooks, hands-on activities to create programming using sensors are emphasized. This suggests that it is important for teacher-training students to acquire knowledge of the hardware materials in each textbook and how to use them. Yamamoto et al. (2020) stated that experiential activities such as hardware materials may lead to a deeper understanding of the goals of programming education among teacher-training undergraduates and that it is important to provide more opportunities for teacher-training undergraduates to experience and teach programming education using hardware materials.

Conclusion

In this study, to examine the nature of programming education for teacher-training undergraduates, we conducted a survey of such students, focusing on the contents of approved textbooks on programming for fifth-grade arithmetic (circles and regular polygons) and sixth-grade science (use of electricity). Results of the analysis of the free description show that the teacher-training undergraduates noticed “differences in the types of processing in programming” and “differences in the diagrams and illustrations used in explanations.” In contrast, there were no descriptions of the differences in the hardware materials in the sixth-grade science textbooks among all the free descriptions. This suggests that it is important to provide more opportunities for students to experience and use hardware materials to acquire knowledge about such materials in each textbook and how to use them.

A future task is to conduct a survey of different targets. All the teacher-training undergraduates surveyed in this study specialize in information education, and it is thought that they had more opportunities to learn the theory and basic knowledge of programming than do other teacher-training undergraduates. Therefore, we would like to conduct a similar survey of teacher-training undergraduates who do not specialize in information education and compare the results to examine the ideal form of programming education in elementary teacher-training courses as a future research topic.

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Analysis of Changes in Children's Awareness of and Ability to Explain Programming in Elementary School Mathematics

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In this study, elementary school mathematics students were asked to follow step-by-step instructions to draw regular polygons in a unit of "regular polygons and circles" in an individual terminal environment using the Proguru program (<https://proguru.jp/>). To analyze changes in students' perceptions of programming, a questionnaire survey was comparatively analyzed before and after class. As a result, the students' interest in programming increased, and there was a fixed effect in giving self-confidence, allowing them to solve the problem alone, and self-efficacy, enabling them to explain the program. Then, as a result of correlation analysis of items related to being able to explain the program, a relation was proven between being able to draw the figure as they wished using programming and being able to understand the programming of the regular pentagon.

Keywords: computer programming, education, elementary school, practice, regular polygons and circles, self-efficacy, individual terminal environment

Introduction

From April 2020, a curriculum guideline (announced in March 2017) was enforced that made programming education a requirement in primary schools. The Ministry of Education, Culture, Sports, Science and Technology (2016) mentioned that the rearing of "programming thinking," which is the developmental stage in "thinking, judgment and expression" of programming, should be the aim of programming education. Programming thinking is the power to logically think about which combination of movements is necessary to realize a series of intended activities, how to combine symbols corresponding to each movement, and how to improve the combination of symbols to approach additional intended activities. The Ministry of Education, Culture, Sports, Science and Technology (2020) mentioned the "drawing regular polygons" unit of the Department of Arithmetic as an example of fostering programming thinking as a "classification of learning activities on programming and approach to teaching."

In designing programming education classes, Siu-Cheung et al. (2018) developed and validated a 15-item scale to assess the programming empowerment of students in educational settings. Fundamentally, it indicates the importance of designing a class of moderate difficulty and opportunities for collaboration that fosters logical thought that holds students' interest and involves using their initiative, in order to raise the creative self-efficacy of the students. Therefore, in this study, we designed a class that included time to share the program made with friends and learning using the small-step programming task.

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In the elementary school course of study (arithmetic course), the need for expressiveness and the ability to explain are described from the viewpoint of the substantiality of language activity for not only thinking logically, but also for transmitting it to others (Ministry of Education, Culture, Sports, Science and Technology, 2017). Sugino and Kurosaki (2008) mentioned (1) evidence, (2) logic (plot), and (3) materials that appeal visually as components of an easy explanation. However, this paper describes a problem, in which clear measures are not clarified on expression and explanation, although a clear direction has been established on mathematical thinking and reasoning of inductive and deductive thinking.

In addition, regarding the learning achievement goal, Omori et al. (2017) showed a learning achievement level by the education stage of "the technical problem solving process," which was consistent from kindergarten to high school. Among them, the substantiality of the language activity and the opinion exchange of idea creation and contrivance point were mentioned as one of the result evaluations of programming thinking in the upper grades of elementary school. However, it has not been clarified whether programming thinking that matches the result evaluation has actually been acquired.

Therefore, the purpose of this study was to practice programming in the unit of "regular polygons and circles" in the fifth grade of elementary school and to analyze the effects on students' perception of programming and their ability to explain programming at this stage.

Methods

The subjects were 33 students (16 males and 17 females) in the fifth grade at an elementary school attached to a national university in Tokyo. Programming experience was evaluated at the beginning of the class in two items of the questionnaire survey: "Q1. Have you ever programmed in school?" and "Q2. Have you ever programmed outside of school?" 19 students answered "Yes" to both Q1 and Q2, seven students answered "Yes" to Q1 and "No" to Q2, five students answered "Yes" to Q2 and "No" to Q1, and one student answered "No" to both Q1 and Q2. One student answered Q1, but not Q2.

On Wednesday, February 24, 2021, a class was held under the theme of "How can we draw regular polygons using programming?" in the division of arithmetic, "regular polygons and circles" (Fig. 2). In each student's individual tablet terminal environment, the class was conducted in two continuous 45-minute parts. The first was carried out by the first author, and the second was carried out by the second author. The third and fourth authors, who each held an elementary school teaching certificate, participated in team teaching.

Programming was performed using the Proguru program (<https://tosho.proguru.jp/takakukeyi/#/1>). At the beginning of the first class, in order to confirm an understanding of the usage of the program, Stage 1, in which the students go straight, turn 90° to the left, and go straight again, was performed as a demonstration to the students. Then, the students were made to do Stages 1 and 2, in which the student went straight, turned 90° to the right, and went straight again. Next, the students were made to do Stage 3, which required them to draw the square without repetition. Afterwards, Stage 4, which involved drawing the square with repetition, was demonstrated by the teacher, and the students also did this. Then, the students were made to notice that the rotation angle used was not the inside angle but the outside angle in Stage 5, which scratched the equilateral triangle. Subsequently, Stage 6, for drawing a regular hexagon, and Stage 7, for drawing a regular pentagon, were undertaken.

In the second part, after confirming that all the students had completed up to Stage 7, a class to make them notice that "the number of repetitions \times turning angle = 360° " was conducted, and it was confirmed as a whole. To confirm that this regularity holds for regular polygons beyond regular hexagons, a regular decagon was drawn in Stage 8, followed by a regular dodecagon and a regular 36-gon shape of the teacher's own design. After that, students were allowed to draw their favorite shapes and share them via Microsoft Teams. Finally, the students wrote their reflections on the class on a worksheet.

A questionnaire survey was conducted at the beginning (pre-survey) and the end (post-survey) of the classes to clarify changes in students' awareness of programming. In the preliminary investigation, Q1 and Q2 were asked to clarify the experience of the students. Then, referring to Fukudome and Kobayashi (2020), the question item on recognition and programming thought for the programming was asked using six items beforehand and afterwards, and the difference was analyzed by *t* test (with the correspondence).

In the parametric test, the effect quantity was calculated because it was necessary to consider that it affects the sample number, and it was judged based on the result (Mizumoto and Takeuchi, 2008).

In the posteriori survey, six new items were added to ask how much students understood according to each programming stage. For these items, a correlation analysis was carried out to clarify the relation between recognition for programming and programming thought. Each question item used a five-item scale, (5. I think so, 4. A little, 3. I can't say either way, 2. Not much, 1. I don't think so." In addition, "Please write freely about your view of programming" was asked after the class, in order to investigate what opinion the students had toward programming.



Figure 1. A way of working on programming

Table 1. Analysis of pre- and post-questionnaire surveys

Items	Pre-survey (n=33)		Post-survey (n=33)		t	p	d(Effect size)
	M	SD	M	SD			
Q3. I'm interested in programming.	4.12	1.17	4.27	1.13	2.39	*	.13
Q4. I can explain what programming is.	2.67	0.85	3.24	0.97	3.03	**	.63
Q5. By programming, you can draw shapes as you like.	3.24	1.23	4.21	0.86	4.81	***	.92
Q6. With the help of friends, you can solve programming problems.	4.21	0.89	4.58	0.66	2.54	*	.46
Q7. You can solve programming problems by yourself.	3.18	1.10	4.00	0.94	4.50	***	.80
Q8. You can explain your programs to your friends.	3.33	0.99	3.70	1.10	2.04	*	.35

※Q1 and Q2 were excluded because they were questions asking about experience in programming.

* $p < .05$, ** $p < .01$, *** $p < .001$

Results

Analysis of pre- and post-surveys

Table 1 shows significant changes in students' perceptions and logical thinking about programming in the pre- and post-questionnaire surveys. The results were described for each question.

"Q3. I am interested in programming ($t(33) = 2.39, p < .05, d = .13, M_{Pre} = 4.12, SD_{Pre} = 1.17, M_{Post} = 4.27, SD_{Post} = 1.13$)" showed significant improvement from pre-survey to post-survey. When the average value was noticed, it exceeded the median value of 3 in both the pre- and post-surveys. From pre-survey, there were 32 students with programming experience out of 33 persons; many students knew about programming prior to this class, and they seemed to be interested. It was proven that interest in programming was improved by experiencing this class. However, because the effect size was small ($d < .20$), this question should be addressed carefully.

"Q4. I can explain what programming is ($t(33) = 3.03, p < .01, d = .63, M_{Pre} = 2.67, SD_{Pre} = .85, M_{Post} = 3.24, SD_{Post} = .97$)" showed significant improvement from pre-survey to post-survey. The pre-survey mean value was under the median value of 3, and it was generally a negative recognition, but the post-survey mean value was 3.24, and it changed to the recognition of "I can't say either way." From this fact, it was proven that many students could not explain what programming is from this class, but the recognition of "it can't be explained" could be reduced. In the future, we may be able to raise this awareness by increasing opportunities to explain our programming to others in the class.

"Q5. By programming, you can draw shapes as you like ($t(33) = 4.81, p < .001, d = .92, M_{Pre} = 3.24, SD_{Pre} = 1.23, M_{Post} = 4.21, SD_{Post} = .86$)" showed significant improvement from pre-survey to post-survey. When the average value was compared, the prior average value was 3.24, and the general perception was that it was "neither," but after the fact, it increased to 4.21. From this fact, it was proven that many students improved the self-efficacy of being able to draw the figure as they wanted using programming through this class. This seems to be an effect of emphasizing the process of stepwise drawing using programming in this class.

The mean value of "Q6. With the help of friends, you can solve programming problems ($t(33) = 2.54, p < .05, d = .46, M_{Pre} = 4.21, SD_{Pre} = .89, M_{Post} = 4.58, SD_{Post} = .66$)" exceeded 4 for both the pre- and post-surveys. From this fact, it was proven that many students thought that they could solve the problems of programming by cooperating with friends before the class, and that the feeling increased after the class experience.

"Q7. You can solve programming problems by yourself ($t(33) = 4.50, p < .001, d = .80, M_{Pre} = 3.18, SD_{Pre} = 1.10, M_{Post} = 4.00, SD_{Post} = .96$)" showed significant improvement from pre-survey to post-survey. When the average value was compared, the prior average value was 3.18, and the general perception was that it was "neither," but after the fact it increased to 4.00. This result indicated that the self-efficacy that the students could solve the programming problem alone through the class was improved. From the result that the average value of Q6 significantly improved from 4.21 to 4.58, it is considered that students who felt that the cooperation of friends was necessary to solve the programming problem in the pre-survey felt that they could solve it by themselves post-survey.

For "Q8. You can explain your own programs to your friends ($t(33) = 2.04, p < .05, d = .35, M_{Pre} = 3.33, SD_{Pre} = .99, M_{Post} = 3.70, SD_{Post} = 1.10$)," the mean value was significantly improved in the post-survey compared to the pre-survey, but all values were around the median value. From this result, it cannot be denied that a certain number of students are not confident in explaining their programs to others clearly after the class. In future, in order to solve this problem, it is necessary to provide opportunities to explain programs to friends during class hours.

From these results, it can be judged that there was a certain effect, in that the students' interest in programming increased in the class, and that they gained confidence that they could solve the programming

problem alone. A further contribution was that many students realized that drawing shapes was possible, even using programming, due to this class.

Correlation analysis

From the analysis result of the pre- and post-survey investigation, in "Q4. I can explain what programming is" and "Q8. You can explain your programs to your friends," students did not have the confidence to explain. In the following section, we consider ways to make students feel more confident explaining.

Table 2 shows the results of the correlation analysis of the answers of the post-survey.

The answers to Q4 showed a moderate positive correlation with Q5 ($r = .46, p < .01$), Q8 ($r = .51, p < .01$), and Q13 ($r = .44, p < .01$). From this result, it was proven that what programming can explain was related to being able to draw the figure as desired using programming, explaining the program made by oneself to a friend, and understanding the programming of the regular pentagon. In order to improve the self-efficacy of being able to explain the programming, it was suggested that it was necessary to acquire the ability to draw the figure in the programming as desired, as well as the ability to explain one's own program to friends. The possibility of improving the ability to explain the programming is considered by enabling the regular pentagon to be drawn using programming.

Next, Q8 showed a moderate positive correlation with Q5 ($r = .53, p < .01$), Q6 ($r = .46, p < .01$), and Q7 ($r = .67, p < .01$). This indicates that being able to explain your own program to your friends is related to being able to draw shapes as you want in programming, being able to solve programming problems with the help of your friends and being able to solve programming problems by yourself. This suggests that by having students acquire the ability to solve programming problems alone or in cooperation with their friends, they may develop a sense of self-efficacy to be able to explain it to their friends.

Q8 showed a moderate positive correlation with Q13 ($r = .40, p < .05$). Q8 was weakly correlated with Q10 ($r = .36, p < .05$) and Q12 ($r = .37, p < .05$). From these results, it was proven that the self-efficacy of being able to explain the program made by oneself, so that a friend could understand, was related to being able to understand the square program with repetition and to understand the program of regular pentagons and regular hexagons. Therefore, it is conceivable that by making it possible to draw a stage in which a figure is drawn using repetition and a stage in which a regular pentagon is drawn using programming, it is possible to explain a program created by oneself to a friend.

Next, Q6 showed a moderate positive correlation with Q13 ($r = .46, p < .01$) and Q14 ($r = .43, p < .05$). From this result, it was found that the ability to solve programming problems with the help of friends was related to the ability to understand regular pentagon and regular polygon programs. Since this is a difficult problem, it seems to have required the support of a friend to solve it. To improve students' sense of self-efficacy, it is necessary for them to be able to solve programming problems and draw complex figures, such as regular pentagons, using repetitive programs. In the scene in which the student draws regular pentagons and regular polygons using programming, the solution of the problem may have required the support of a friend. In the class, it seemed necessary for group work to involve discussions with a friend.

Table 2: Correlations between each question

Items	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10	Q 11	Q 12	Q 13	Q 14	M	SD
Q3. I'm interested in programming.	—	.37 *	.49 **	.12	.15	.09	.04	.08	.06	.07	.13	.02	4.27	1.13
Q4. I can explain what programming is.		—	.46 **	.41	.24	.51 **	.15	.29	.13	.19	.44 **	.18	3.24	0.97
Q5. By programming, you can draw shapes as you like.			—	.44 *	.55 **	.53 **	.22	.23	.31	.34	.31	.25	4.21	0.86
Q6. With the help of friends, you can solve programming problems.				—	.40 *	.46 **	.34	.39 *	.34 *	.40	.46 **	.43 *	4.58	0.66
Q7. You can solve programming problems by yourself.					—	.67 **	.06	.15	.32	.40 *	.32	.23	4.00	0.94
Q8. You can explain your programs to your friends.						—	.16	.36 *	.33	.37 *	.40 *	.31	3.70	1.10
Q 9. I understood the program drawn in stage 3 (square without repetition).							—	.89 **	.69 **	.66 **	.55 **	.75 **	4.70	.529
Q10. I understood the program drawn in stage 4 (square with repetition).								—	.74 **	.72 **	.74 **	.85 **	4.76	.435
Q11. I understood the program drawn in stage 5 (equilateral triangle).									—	.95 **	.82 **	.80 **	4.79	.415
Q12. I understood the program drawn in stage 6 (regular hexagon).										—	.80 **	.74 **	4.76	.502
Q13. I understood the program drawn in stage 7 (regular pentagon).											—	.80 **	4.79	.415
Q14. I understood the program drawn in stage 8 (regular polygon).												—	4.73	.574

**Q1 and Q2 were excluded because they were questions asking about experience in programming.

* $p < .05$, ** $p < .01$

Analysis of programming image research

The free description of the image to the program received 32 answers. As a result, descriptions, such as "something fun or interesting (10 cases, 31.3%)," "You can draw any shape you like (eight cases, 25.0%)," and "Used in robots, games, and electronics (six cases, 18.8%)" were mentioned as ranking highly. In addition, descriptions, such as "You can make it freely (four cases, 12.5%)," "something simple (four cases, 12.5%)," "something on which a shape is easily drawn (three cases, 9.38%)," and "something difficult (three cases, 9.38%)" were also found. In addition, descriptions, such as "moving according to command (two cases, 6.25%)," "match one's forecast with the results of how the program works (one case, 3.13%)," and "You can make whatever you want (one case, 3.13%)" were also found. From these results, while some students could imagine that programming is used in electronic devices, such as robots and games, many students seemed to regard programming as something that can be used to draw a shape, as something that is fun, and as something that is interesting.

The result of Q4 of "4.1 analysis of the questionnaire survey before and after" indicated that there were some students who did not have confidence in explaining what programming is. The Ministry of Education, Culture, Sports, Science and Technology (2020) has described the necessity of planned training "programming thinking" through programming experience. In future programming classes, class practice that introduces the logical explanation of the program that the student arranged in order is required, as it gives the students broader recognition of where programming is used in society.

Summary and Future Issues

The purpose of this study was to analyze the change in students' recognition of programming and their programming thinking before and after class by utilizing programming in a unit of "regular polygons and circles" of elementary school mathematics.

As a result of analyzing the questionnaire pre- and post-survey using the *t* test with the correspondence, it was clarified that there was an effect, in that it improved the students' interest in programming and that it gave them the self-confidence to solve the problem alone, and the students realized that they can draw shapes using programming. However, the existence of students who did not have the confidence to explain programming and explain the program to a friend was also clarified.

Then, as a result of the correlation analysis, to analyze the question related to the self-efficacy of being able to explain one's program to a friend, there was the possibility of improving the self-efficacy of being able to explain programming by solving the problem with one person or a friend through the construction of the regular pentagon and regular polygon programming, for which difficulty is high.

As a result of the analysis of the free description, it was clarified that there were some students who had limited grasp of programming, as a thing that draws figures or does fun and interesting things.

In future, there should be activities to help students recognize where programming is used in society and activities to understand why programming is necessary. In addition, a teaching practice that systematically introduces the time to explain the program to a friend to see if the students have learned programming thinking is required. In addition, programming education is required to be aware of the SDGs "quality education for all" and to analyze thinking patterns and "programming thinking" changes not only in math but also in other subjects, as in Hoshi et al. (2018).

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Effects of Distance Learning Support on University Students' Views on Teaching and the Teaching Profession

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Abstract

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) in Japan requires that teacher-education students' understanding of education and the teaching profession be enhanced at the training stage. One way to enhance their views on education and the teaching profession is to have them participate in remote learning support as after-school learning. In addition, with the realization of the Global and Innovation Gateway for All (GIGA) school concept by MEXT, it is planned to provide one tablet per student environment. Furthermore, with the impact of the new coronavirus pandemic, there is a need to improve teaching skills by connecting school and home remotely. In this study, we focus on the videoconferencing system and show how to use it to support the learning of children who are away from the university. The purpose of this study is to clarify how distance learning support affects teacher-education students' views on teaching, their ability to understand children, and their teaching ability. Nine students (eight undergraduate students and one graduate student) participated in this study. Learning support was provided every Thursday from May 22 to July 17, 2019, from 4:00 to 5:30 p.m., for a total of nine sessions (90 minutes per session), to 18 elementary school students. A total of 34 questionnaires were administered to the teacher-education students, and analyzed to identify items that influenced their views on teaching, their ability to understand children, and their teaching skills. The results showed that, with regard to teaching, items related to collaborative learning improved and children's motivation to learn was perceived to have increased.

Keywords: education, elementary school, practice, study support, attitude survey

Introduction

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) in Japan requires that teacher-education students' understanding of education and the teaching profession be enhanced at the training stage.

One way to do this is to have them participate in remote learning support as after-school learning. In addition, with the realization of the Global and Innovation Gateway for All (GIGA) school concept by MEXT, the plan is to provide one tablet per student environment. Furthermore, given the impact of the coronavirus pandemic, there is a need to improve teaching skills by connecting the school and home remotely. In this study, we focus on videoconferencing and explore how to use it to support the learning of children who are away from the university.

The purpose of this study is to clarify how this experience affects teacher-education students' views on teaching, their ability to understand children, and their teaching ability.

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Methods

Nine students (eight undergraduate students and one graduate student) participated in this study. Learning support was provided every Thursday from May 22 to July 17, 2019, from 4:00 to 5:30 p.m., for a total of nine sessions (90 minutes per session), to 18 elementary school students. There were nine students (one male, eight females) who supported the project from the university via videoconference, and two students, both male, who supported the project in person, on site. There were two venues where the children gathered, and each venue was staffed by a local support person and two teachers involved in the project. In addition to setting up the venue and managing the tablets, the local supporters connected the videoconference with the university. Following this, while preparing the venue and connection, we reviewed the previous session's remarks and confirmed the support methods for this session.

In the first session of the project, distance learning supporters only interacted with the children by introducing themselves and breaking the ice using one tablet per child. The second session onwards, the supporters provided one-on-one or one-on-two distance learning support to the children (Figure 1).

First, having exchanged greetings, the goals for the day were set. Specifically, during the ice-breaking session, the children's daily lives and learning conditions for the week were assessed with the help of their facial expressions, and learning objectives were set accordingly. These checks were performed on a worksheet. The subjects of the Distance Learning Support were not limited to a particular one, but included any subject or unit that the children wanted.

Second, we provided distance learning support using the tablet terminals. The learning duration was 70 to 80 minutes, but this, along with the duration of the break, was not fixed for the entire study, and the latter was decided as required, based on the discretion of the distance learning supporters.

Third, we reviewed and confirmed what we would learn the next time. The supporters reviewed the learning support of the present session with the children and confirmed the contents of the next one, including homework.

Fourth, a review meeting was held between the local supporters and the distance learning supporters. Once the children had left, the local supporters shared information with the distance learning supporters, about the children's condition, via a video conference. The distance learning supporters received information that could not be perceived through the computer screen, and confirmed areas for improvement and ongoing support.

After the eighth study support session, a questionnaire survey was conducted on the students' understanding of education and the teaching profession. The questionnaire consisted of a total of 35 items (a 5-point scale): 11 items related to their understanding of education, such as those related to children's motivation to learn, and 24 items related to their views on the teaching profession. A t-test was conducted using the median (3) as the population mean.

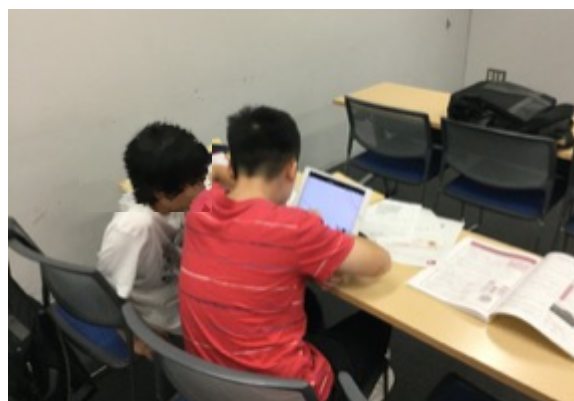


Figure 1: Images of Distance Learning Support

Table 1: Results of the questionnaire [t-test with the median (3) as the population mean]

Items	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	<i>r</i>	95%CI
Q1. The children enjoyed the learning support through video conferencing.	4.56	0.53	8.85	***	.95	1.15 — 1.96
Q2. Learning support through videoconferencing was effective in helping the children develop study habits.	3.78	0.83	2.80	*	.70	0.14 — 1.42
Q3. Learning support through videoconferencing was effective in motivating the children to learn.	4.11	0.60	5.55	**	.89	0.65 — 1.57
Q4. Learning support through videoconferencing was situations in which children recognize that they have understood their studies.	4.67	0.50	10.00	***	.96	1.28 — 2.05
Q5. The presence of myself (a university student) via videoconference had an impact on the children's motivation to learn.	3.89	0.60	4.44	**	.84	0.43 — 1.35
Q6. Learning support through videoconferencing was building a good relationship with children	4.44	0.73	5.97	***	.90	0.89 — 2.00
Q7. We were able to communicate well with the local supporters (students and teachers) through learning support via video conference.	3.56	1.24	1.35		.43	-0.39 — 1.51
Q8. The difficulty level of the problems in this project was appropriate.	3.78	1.09	2.14		.60	-0.06 — 1.62
Q9. Learning support through video conferencing was easy to teach.	2.44	0.73	-2.29		.63	-1.11 — 0.00
Q10. Communicating with the children via video conference was difficult.	3.44	0.88	1.51		.47	-0.23 — 1.12
Q11. By participating in distance learning, students will have a sense of mission and passion for teaching, and will be able to establish the image of the teacher they want to become.	3.56	0.88	1.89		.56	-0.12 — 1.23
Q12. By participating in distance support, you will learn to always try to learn from and grow with the child.	4.44	0.53	8.22	***	.95	1.04 — 1.85
Q13. By participating in distance support, they will have high ethical standards, a sense of normality, and a strong will to face difficulties and fulfill their own responsibilities.	3.56	1.01	1.64		.50	-0.22 — 1.33
Q14. By participating in distance support, they will be able to put the growth, safety and health of the child first and act appropriately.	3.22	0.67	1.00		.33	-0.29 — 0.73
Q15. By participating in distance support, they become aware of their own issues with children and are constantly learning to solve them.	4.11	0.78	4.26	**	.83	0.51 — 1.71
Q16. Participating in distance support will help them to understand their responsibilities and duties as teachers.	3.11	1.17	0.29		.10	-0.79 — 1.01
Q17. By participating in distance support, as a teacher, you will be able to say and do things that are appropriate for the purpose and situation.	3.33	0.87	1.16		.38	-0.33 — 1.00
Q18. By participating in distance support, they will become more aware of their role as a member of the organization and will be able to cooperate with other participants to carry out their duties.	4.11	1.05	3.16	*	.75	0.30 — 1.92
Q19. By participating in distance support, they will be able to listen to the opinions and advice of other participants.	4.56	0.53	8.85	***	.95	1.15 — 1.96
Q20. By participating in distance support, they will be able to treat children in a fair and accepting manner and engage in rich human interactions.	4.11	0.78	4.26	**	.83	0.51 — 1.71
Q21. By participating in distance support, they will be able to understand the challenges that children face in their development and physical and mental conditions, and provide appropriate guidance.	3.44	0.88	1.51		.47	-0.23 — 1.12
Q22. By participating in distance support, they will be able to build a trusting relationship with your child.	3.56	0.73	2.29		.63	0.00 — 1.11
Q23. By participating in distance support, they can willingly try to grasp the new challenges and changes in children that arise as a result of changing social conditions and times.	4.00	0.87	3.46	**	.77	0.33 — 1.67
Q24. By participating in distance support, they can easily meet the children face to face and consult with them in a friendly manner.	4.00	0.50	6.00	***	.90	0.62 — 1.38
Q25. By participating in distance support, they can easily meet the children face to face and consult with them in a friendly manner.	3.33	0.87	1.16		.38	-0.33 — 1.00
Q26. By participating in distance learning support, students will be able to acquire basic matters of learning instruction (e.g., textbook knowledge and skills).	3.22	0.83	0.80		.27	-0.42 — 0.86
Q27. By participating in distance support, they can easily meet the children face to face and consult with them in a friendly manner.	4.00	1.12	2.68	*	.69	0.14 — 1.86
Q28. By participating in remote support, they will be able to devise lesson plans, learning styles, etc. according to children's responses and learning retention.	3.78	0.44	5.29	**	.88	0.44 — 1.12
Q29. By participating in distance learning support, students will be able to independently research teaching materials and create study plans that make use of them.	2.78	1.20	-0.56		.19	-1.15 — 0.70
Q30. By participating in distance support, they will feel more confident about working as teachers in the future.	3.67	0.87	2.31		.63	0.00 — 1.33
Q31. By participating in distance support, they will be able to understand the actual situation of the children, which they were not aware of before.	4.33	0.71	5.66	***	.89	0.79 — 1.88
Q32. By participating in distance support, they can become aware of the skills they need to acquire more in dealing with children.	4.56	0.53	8.85	***	.95	1.15 — 1.96
Q33. By participating in distance support, they can become aware of the skills they need to acquire more in dealing with children.	3.33	0.71	1.41		.45	-0.21 — 0.88
Q34. By participating in distance support, they will be able to teach your child to understand his or her own level of understanding.	4.11	0.78	4.26	**	.83	0.51 — 1.71
Q35. By participating in distance support, they will be able to teach their children to understand the joy of learning.	4.11	0.33	10.00	***	.96	0.85 — 1.37

*** $p < .001$; ** $p < .01$; * $p < .05$

Results

Table 1 presents the questionnaire results. The results of the questionnaire survey showed that Q1: ($t(9) = 8.85, p < .001, r = .95, M = 4.56$),” Q2: ($t(9) = 2.80, p < .05, r = .70, M = 3.78$),” Q3: ($t(9) = 5.55, p < .01, r = .95, M = 4.56$),” Q4: ($t(9) = 10.00, p < .001, r = .96, M = 4.67$),” Q5: ($t(9) = 4.44, p < .01, r = .84, M = 3.89$),” Q6: ($t(9) = 5.97, p < .001, r = .90, M = 4.44$)” . The mean value of the three items related to the children's comprehension was significantly higher, and their perceptions were positive. The results supported the study of Yamazaki et al. (2018), as students recognized situations in which children “understood their studies” with the help of distance learning support.

The results of the questionnaire survey showed that Q18: ($t(9) = 5.16, p < .001, r = .75, M = 4.11$),” Q19: ($t(9) = 8.85, p < .001, r = .95, M = 4.56$). The mean value of the three items related to the children's comprehension was significantly higher, and their perceptions were positive. Looking at the free text, it was opined that “using a tablet inevitably causes misalignment, so I learned that it is important to have repeated discussions at both locations in order to eliminate such misalignment” From the perspective of understanding education, it was found that supporters could expect to solve problems through cooperation among supporters from remote support.

The results of the questionnaire survey showed that Q12: ($t(9) = 8.22, p < .001, r = .95, M = 4.44$),” Q20: ($t(9) = 4.26, p < .01, r = .83, M = 4.11$), ” Q23: ($t(9) = 3.46, p < .01, r = .77, M = 4.00$). The mean value of the three items related to children's comprehension was significantly higher, and their perceptions were positive. Looking at the free text, it was opined that “we need to work together to figure out how to plan for this. It is necessary to take into account the personality and to assess the situation.” As a result, the involvement of distance learning support is expected to deepen the understanding of these the children in question.

Conclusion

In this study, we specifically located items in which students' understanding of education and the teaching profession was altered by the participation of teacher-education students in distance learning support for elementary school students. As a result, the items related to collaborative learning improved in terms of understanding education. In addition, students perceived that their motivation to learn increased. We also found that students could improve their understanding of children through collaborative learning to solve problems, and through interactions with children requiring financial support.

Future work includes designing learning support to hone teacher-education students' skill in teaching specific subjects, recording the process of learning support between children and students, and qualitatively analyzing the interaction between the two.

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Effects of Proactive Attitude Toward Learning by Feedback With a System for Converting Dialogue into Text: Focusing on Information Study in Senior High School

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In this study, we focused on "the aspect of trying to adjust one's own learning through reflection (self-regulated learning)," which is a "proactive attitude toward learning" emphasized in senior high school courses (published in 2008).

"COTOHA Meeting Assist," a system which converts students' dialogues into text in real time, was used to evaluate the process of discussion. Results of analysis of the dialogue to text system showed that students recognized that they could reflect on their own and their partner's statements better in face-to-face class than in online class or a class format in which post-lecture reports and questionnaire surveys were conducted outside of class time.

Keywords: Converting Dialogue into text, Reflection, Senior High School, Online

Introduction

In recent years, there has been a growing interest regarding educational practices based on information and communication technology (ICT). In particular, the use of ICT in education is attracting worldwide attention because of the widespread use of digital devices for communication, including distance learning. In Japan, it is necessary to organize and disseminate examples of the effective use of advanced technologies in schools. In addition, the enhancement of "personalized and self-regulated learning" and "collaborative learning" and the appropriate evaluation of students' "proactive attitudes toward independent learning" have been identified as challenges. Japanese high schools are required to consider and practice effective ways of using ICT.

In this study, we focus on the use of ICT in senior high schools and evaluating the learning situation in terms of "attitude toward independent learning." In this evaluation, we focus on "self-regulated learning," which is an attempt to adjust one's own learning through reflection. Self-regulated learning is important for students to be able to recognize their own goodness and potential and to move on to the next stage of learning.

The COTOHA Meeting Assist is a system that converts students' dialogue into text in real time, visualizes the process of student discussion, and teaches lessons that reflect the content of the discussion while confirming this text. This enables students to quickly reflect on the content of their discussions and to encourage self-regulated learning. The purpose of this study is to evaluate the system described above by using it to teach lessons and evaluating these through questionnaire surveys.

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Methods

In this study, 144 students (65 boys and 79 girls) in the first grade of a Tokyo Metropolitan High School were each assigned one computer which had Microsoft Teams and COTHA Meeting Assist. The first author conducted a class on "Human Rights Damages by Internet" from Tuesday, September 7, 2021, to Friday, October 15, 2021.

In this class, we taught "Issues of the Information Society and Information Morality," a topic under the senior high school information science course "Information Study for Participating Community." The course aimed to discuss issues regarding various personal information available on the Internet (SNS). The classes were divided into three sections with different class formats (Table 1). In the first round, students were asked to think of their opinions on the topic of discussion. In the second round, discussions were held using web conferencing and a system that converts dialogue into text (Picture 1). In the third round, the participants reflected on the dialogue transcripts and worked on a report assignment (Figure 1).



Picture 1: Students checking their discussion process on the system



Figure 1: System display which converts dialogue into text

Table 1: Class format and number of students under each class

	1st	2nd	3rd
Class A (34 students)	face-to-face class	face-to-face class	Online class
Class B (37 students)	face-to-face class	face-to-face class	face-to-face class · report
Class C (36 students)	face-to-face class	face-to-face class	face-to-face class
Class D (37 students)	Online class	face-to-face class	face-to-face class

Table 2: Analysis results of the system evaluation questionnaire survey

Questions	Class	N	M	SD	F Value partial η^2	Multiple comparisons and effect sizes (Only significant differences are shown)
Q1. Do you think it is possible to reflect on the class by checking the minutes system?	A	34	3.24	0.78	2.29 0.05	-
	B	37	3.16	0.76		
	C	36	3.53	0.51		
	D	37	3.16	0.69		
Q2. Do you think that you can look back on [your] remarks by checking the system that converts dialogue into text?	A	34	3.18	0.80	5.01** 0.01	Class C>Class A**, <i>d</i> =-0.79 Class C>Class B**, <i>d</i> =-0.62 Class C>Class D**, <i>d</i> =0.77
	B	37	3.30	0.78		
	C	36	3.75	0.44		
	D	37	3.19	0.81		
Q3. Do you think that you can look back on [classmates'] remarks by checking the system that converts dialogue into text?	A	34	3.24	0.85	4.81** 0.09	Class C>Class A*, <i>d</i> =-0.73 Class C>Class B*, <i>d</i> =-0.68 Class C>Class D**, <i>d</i> =0.76
	B	37	3.27	0.73		
	C	36	3.75	0.44		
	D	37	3.22	0.71		
Q4. Do you think that checking the system that converts dialogue into text can be useful for self-evaluation?	A	34	3.24	0.78	2.14 0.04	-
	B	37	3.41	0.64		
	C	36	3.50	0.51		
	D	37	3.14	0.75		
Q5. Do you think that checking the minutes system can be useful for mutual evaluation?	A	34	3.09	0.83	2.19 0.04	-
	B	37	3.35	0.72		
	C	36	3.50	0.56		
	D	37	3.22	0.71		

* $p < .05$, ** $p < .01$

On September 21, October 4, and October 15, 2021, we conducted a web-based questionnaire survey which aimed to evaluate the dialogue to text system.

The five questions in Table 2 were answered using a four-point scale (1. Strongly Disagree, 2. Disagree, 3. Agree, 4. Strongly agree). Afterwards, a one-way factorial ANOVA was conducted to compare and analyze the students' perceptions of the four classes with different teaching styles, as shown in Table 1.

Results

Table 2 shows the results of one-way factorial ANOVA. As a result, significant differences were found in the following items: “(2) Do you think that you can look back on your remarks by checking the system that converts dialogue into text?” ($F(3,140) = 5.01, p < .01, \text{partial } \eta^2 = 0.01$) and “(3) Do you think that you can look back on [classmates'] remarks by checking the system that converts dialogue into text?”

($F(3,140) = 4.81, p < .01, \text{partial } \eta^2 = 0.09$). Therefore, multiple comparisons using the Holm method were conducted, and the following results were obtained:

For the question "(2) Do you think that you can look back on [your] remarks by checking the system that converts dialogue into text," the mean value of Class C (3.75) was significantly greater than that of Class A (3.18) and Class D (3.19) ($p < .01$). The mean value of Class C (3.75) was found to be significantly greater than that of Class B (3.30) ($p < .05$).

For the question "(3) Do you think that you can look back on [classmates'] remarks by checking the system that converts dialogue into text," the mean value of Class C (3.75) was significantly greater than that of Class D (3.22) ($p < .01$). In addition, the mean value of Class C (3.75) was found to be significantly greater than that of Class A (3.24) and Class B (3.27) ($p < .05$).

According to the above results, Class C had the highest score for the items "(2) Do you think that you can look back on your remarks by checking the system that converts dialogue into text?" and "(3) Do you think that you can look back on [classmates'] remarks by checking the system that converts dialogue into text?"

Conclusion

Students in Class C may have been more aware than those in the other classes because all their classes were face-to-face. In face-to-face class, there is physical communication and it is easy to exchange opinions. Therefore, we believe that this is conducive for the learning activity wherein students reflect on their own and their partner's individual remarks. In the future, it will be important to devise ways to actively communicate in online classes.

The results of multiple comparisons showed that there were moderate to high level differences in the effectiveness among Class C and Classes A, B, and D for the questions "(2) Do you think that you can reflect on your own remarks by checking the system that converts dialogue into text?" and "(3) Do you think that the system that converts dialogue into text is useful for self-evaluation?" On the other hand, there were no significant differences among the groups for the questions "(1) Do you think that you can reflect on the class by checking the system that converts dialogue into text?," "(4) Do you think that checking the system that converts dialogue into text can be useful for self-evaluation," and "(5) Do you think that checking the system that converts dialogue into text can be useful for peer evaluation?"

In this study, we attempted to teach a class at a metropolitan high school using a system that converts students' dialogues into text in real time for the course "Issues of the Information Society and Information Morality." The results showed that students perceived that they could reflect on their own and others' comments better in face-to-face classes than in online classes or classes in which post-lecture reports and questionnaire surveys were conducted outside of class time. In particular, the presence or absence of interactive communication needs to be treated with caution because of its impact on the learning activity focusing on reflecting on individual statements.

In the future, classes that are as effective as face-to-face classes such as online classes, after-school reports, and questionnaire surveys conducted outside class hours should be designed.

It is necessary to: 1) analyze the change in students' consciousness by comparing the attitude surveys of each class, 2) analyze the change in students' self-evaluations by comparing students' self-rubrics, and 3) evaluate reflective report assignments and investigate and analyze the influence of the system that converts dialogue into text on learning.

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Effect Analysis of Undergraduate Students Joined In-school Training by Online

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This study analyzed what types of effect on the improvement of quality and ability of future teachers did the participation of the undergraduate students in the online in-school training have. The study was conducted at an elementary school in Tokyo. A total of 11 students (6 men and 5 women), 10 undergraduates and 1 graduate student, participated in the online in-school training on "ICT utilization and programming education." Teacher training for approximately 1 h and 30 min was carried out for the purpose of learning the method of the class using the online system and attending the lecture on the theme of "ICT utilization and programming education" by a university teacher whose specialty is information education. After participating in online in-school training, a questionnaire and an open-ended survey were administered. As a result of the questionnaire, the following answers were obtained: "23. I was able to know what the training at school was like. ($t(11) = 21.0, p < .01, M = 4.90$)," "5. I found out that there is a system to receive advice and assistance when something that I don't understand happens ($t(11) = 8.04, p < .01, M = 4.63$)," "25. By participating in online in-school training, I was able to learn about communication between teachers ($t(11) = 8.04, p < .01, M = 4.63$)," "10. By inviting lecturers, teachers were able to understand their expertise ($t(11) = 14.9, p < .01, M = 4.81$)," and "8. By sharing the methods of ICT utilization and programming education among teachers, I was able to understand that it could be a reference for guidance ($t(11) = 12.26, p < .01, M = 4.72$)." These answers were considered to be significantly positive. Regarding what they learned during the online in-school training, 7 out of 11 respondents (66%) answered, "I learned how the in-school training is conducted and how the teachers feel about the in-school training." Furthermore, 7 out of 11 (66%) respondents answered that "they wanted to carry out the exchange of opinion with teachers in the field more actively" when asked what they wanted to learn more through online in-school training. In future studies, it is necessary to examine the method for conducting in-school training, except for programming education, as well as the method for carrying out in-school training without calling outside lecturers. The following should be examined: a method for managing and participating in the in-school training of the hybrid type, which fused face-to-face and online, and the effect of this on the quality and ability of undergraduate students as future teachers.

Keywords: Elementary school, In-school training, Online, ICT utilization, Programming education

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Introduction

Although teachers are required to have training and the opportunity to participate in teacher training in their respective local governments, in-school training is one type of training that can be undertaken daily. If teachers actively engage in in-school training, they can improve their daily lessons, which will become the foundation for improving children's academic performance (Ministry of Education, Culture, Sports, Science and Technology, 2014).

However, in-service training is difficult for undergraduate students to visualize because they have not experienced it before, and it is not often covered in university classes. Therefore, it is expected that participating in actual in-service training will have an impact on undergraduate students' perceptions of the teaching profession because they will be able to learn what in-service teachers think about education.

In the 2020 school year, because of the novel coronavirus, it became difficult to invite outside instructors for in-school training. In this study, we examined the effect of the novel coronavirus on the perception of teaching. In this study, we examined the effect of an online training system on student performance.

This study aims to analyze how the participation of undergraduate students in online in-school training can improve the qualities and abilities required by teachers in the future. Specifically, a questionnaire survey was administered to the students who participated in the in-service training using the video conferencing system (Zoom) at Elementary School A. Based on the findings of the subjective evaluation, this study aims to propose the effects and abilities that can be obtained by participating in online in-service training.

Methods

On June 25, 2020, in-school training was held at A Elementary School in Tokyo. A total of 11 students (6 males and 5 females), 10 undergraduates and 1 graduate student, participated in the in-school training on "ICT utilization and programming education" online. The training was held for about an hour and a half with the purpose of learning how to teach using the online system and listening to a lecture on the theme of "ICT utilization and programming education" by a university teacher specializing in information education. The students of the Faculty of Education participated with their own computers and smartphones, and the teachers of Elementary School A participated online from different classrooms while they were at school.

The questionnaire survey (28 items in total) was administered after the online in-school training. Respondents were asked to indicate their impressions of the in-service training after participating in the online in-service training (Takako Koshimizu et al, 2014) and indicate which skills they thought would be enhanced by participating in the in-service training (Masayuki Fukumoto et al, 2014), using a 5-point scale (1. disagree, 2. somewhat disagree, 3. undecided, 4. somewhat agree, 5. agree). A t-test was conducted using the median (3) as the population mean.

In addition, the questionnaire asked the respondents to write freely about (1) what they learned from the online in-school training and (2) what they wanted to learn more from the online in-school training. From the results obtained, we analyzed the influence of "attending the online in-school training."

Results

Questionnaire survey

Table 1 shows only those items that were judged to be favorable, with significant differences and mean values higher than the median (3). The results showed that "23. I was able to know what in-school training was like ($t(11) = 21.0, p < .01, M = 4.90$)" had significantly more positive responses. Therefore, it was found that most of the undergraduate students were aware that they were able to learn about in-school training by participating in online in-school training. The results showed that the majority of undergraduate students were aware that they were able to learn about in-service training by participating in online in-service training.

Table 1: Questionnaire results (*t*-test of the population mean using the median (3) as the threshold)

Item	M	SE	t	p	95%CI	r
1. Apply the results and challenges of in-school training to lesson planning.	4.45	0.16	9.23	.000	4.10 4.81	0.95
2. It is possible to identify teachers who have the necessary knowledge and skills to promote the use of ICT and programming education from among several teachers.	3.90	0.21	4.30	.002	3.44 4.38	0.81
3. It is possible to understand that managers have clear ideas about the use of ICT and programming education.	4.09	0.34	3.18	.010	3.33 4.85	0.71
4. It can be understood that the ideas regarding the use of ICT and programming education are shared by the entire workplace.	4.18	0.23	5.22	.000	3.68 4.69	0.86
5. there was a system in place to provide advice and assistance when they had questions.	4.63	0.20	8.04	.000	4.18 5.09	0.93
6. Because the teacher understands the child well, the discussion becomes more in-depth, and the results can be immediately applied to teaching.	3.81	0.26	3.10	.011	3.23 4.41	0.7
7. We can understand that the most important thing is to conduct the training not within the framework of the subject, but within the framework of colleagues who are teaching the same children.	4.00	0.27	3.70	.004	3.40 4.60	0.76
8. Teachers can share ICT utilization and programming education methods with each other.	4.72	0.14	12.26	.000	4.41 5.04	0.97
9. It can be understood that it is necessary for all teachers to conduct a research class at least once in order to improve their teaching skills in ICT utilization and programming.	4.72	0.14	12.26	.000	4.41 5.04	0.97
10. I understood that teachers can think about their expertise when inviting lecturers.	4.81	0.12	14.90	.000	4.55 5.09	0.98
11. I can sense that each teacher is aware of the need to improve their teaching skills.	4.27	0.27	4.66	.001	3.67 4.88	0.83
12. We can understand that teachers are discussing about classes and researching teaching materials.	4.27	0.30	4.18	.002	3.59 4.95	0.8
13. It can be understood that the management and faculty are working together on class research.	4.54	0.21	7.45	.000	4.08 5.01	0.92
14. The students were able to actively participate in online in-school training. It can be understood that the management and faculty are working together on class research.	4.27	0.19	6.52	.000	3.84 4.71	0.9
15. In the online in-school training, I was able to work in unison with the other participants.	3.90	0.28	3.19	.010	3.27 4.54	0.71
16. Overall, the online in-school training was satisfactory.	4.09	0.25	4.35	.001	3.53 4.65	0.81
17. I was able to exchange opinions with other participants in the online in-school training and acquire knowledge about ICT utilization and programming education.	3.90	0.41	2.19	.053	2.99 4.83	0.57
18. By participating in the online in-school training, I was able to understand the meaning of promoting the use of ICT in the school.	3.90	0.28	3.19	.010	3.27 4.54	0.71
19. By participating in the online in-school training, I was able to understand the way teachers think about using ICT in their classes.	3.72	0.33	2.18	.054	2.99 4.47	0.57
20. Through working on a single project with my colleagues at work, I learned about the need to understand each other and deepen human relationships.	4.00	0.33	3.02	.013	3.26 4.74	0.69
21. It gave me an opportunity to learn more about in-school training.	4.18	0.30	3.99	.003	3.52 4.84	0.78
22. I have acquired the ability to utilize ICT and programming education that can be used in my daily educational practice.	3.81	0.23	3.61	.005	3.31 4.32	0.75
23. I was able to know what in-school training was like.	4.90	0.09	21.00	.000	4.71 5.11	0.99
24. I think I can take the initiative to participate in in-school training in the future.	4.63	0.15	10.75	.000	4.30 4.98	0.96
25. Participating in the online in-school training allowed me to learn more about the interactions among teachers.	4.63	0.20	8.04	.000	4.18 5.09	0.93

In addition, the online in-service training helped them understand that "5. there was a system in place to provide advice and assistance when they had questions ($t(11) = 8.04, p < .01, M = 4.63$)." were significantly positive. These results suggest that undergraduate students may be able to learn about the nature of teachers' support systems by participating in online school training.

Looking at the ICT utilization and programming education learned through the online in-school training, it was found that "10. I understood that teachers can think about their expertise when inviting lecturers ($t(11) = 14.9, p < .01, M = 4.81$)", "8. Teachers can share ICT utilization and programming education methods with each other. ($t(11) = 12.26, p < .01, M = 4.72$)" were significantly positive. It was clear that most of the undergraduate students understood that ICT utilization and programming education were shared among teachers in the in-school training and research classes and that they could learn more by inviting outside lecturers.

Free writing

Regarding what they learned by observing the online in-school training, we received 7 out of 11 responses (66%), such as "I learned how in-school training is conducted and what kind of awareness teachers have toward in-school training. This suggests that if undergraduate students participate in online in-service training, they may be able to think about how to use ICT and the importance of this in addition to having an image of in-service training.

As for what they wanted to learn more through online in-school training, 7 out of 11 responses (66%) were obtained, such as "I would like to have more active exchange of opinions with teachers in the field. To satisfy the desires of undergraduate students, they should participate in the online in-service training repeatedly to get more opportunities to exchange opinions with in-service teachers and interact with schools different from those in this study. In addition, it is important to participate in in-service training after visiting the school and observing the class; therefore, it is necessary to consider the hybrid type of participation online and face-to-face.

Conclusion

In this study, we analyzed the effects of undergraduate students' online participation in in-school training on "ICT Application and Programming Education" on the improvement of the qualities and abilities required of future teachers. As a result, it was found that undergraduate students' perceptions of what in-school training is like can be understood, as can their attitudes toward deepening their learning by sharing the content of their research with other teachers and the support system of teachers.

In-school training requires undergraduate students to visit schools and participate in in-school training conducted in cases different from this study. However, because of the novel coronavirus, it is difficult for them to participate in person frequently. In the future, it is necessary to consider ways to handle online in-school training other than programming education and understand how to conduct in-school training without inviting outside instructors. In addition, we would like to examine how to manage and participate in hybrid in-school training that combines face-to-face and online training, and the impact of this on the qualifications and abilities of undergraduate student teachers.

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Perceptions of Elementary School Teachers Toward the Practice of One Tablet Terminal per Child

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This research focuses on elementary school teachers' perceptions of the practice of using one tablet terminal per child. To realize the "Global and Innovation Gateway for All (GIGA) School Concept in Japan," which was set up with the aim of students learning inside and outside school, per student, elementary school teachers need to have the ability to teach using one tablet terminal per child. However, looking at the current status of teacher's ICT teaching skills; their ability to teach using ICT in the classroom and their ability to teach students to use ICT are low. Therefore, we conducted a verbal interview survey to determine what elementary school teachers look for in terms of ICT-based classes and teacher training on the use of ICT with a single tablet terminal per child. The results showed that the elementary school teachers surveyed perceived that ICT-based classes with one tablet terminal per child were good because these helped attract and retain children's interest. However, they also had negative perceptions such as "I don't know how to teach," "I don't have time to prepare the ICT equipment," and "I am not sure if I can teach well." These results suggest that having ICT support staff prepare the equipment before class may help teachers adjust to the use of ICT equipment. Additionally, teachers may also be able to increase their understanding of ICT equipment by observing classes of other teachers who teach with one tablet terminal per child. Regarding teacher training on the use of ICT, one respondent said, "I would like to learn about specific subjects and units." From this, it is expected that teachers' anxiety would be relieved by observing classes in which one tablet terminal per child was used. It is also expected that practicing how to teach lessons themselves and receiving comments from other teachers would help alleviate their concerns.

Keywords: Global and Innovation Gateway for All (GIGA) School Concept in Japan, one tablet terminal per child, Information Technology in Education, quantitative text analysis, co-occurrence network analysis, elementary school

Introduction

To realize the "Global and Innovation Gateway for All (GIGA) School Concept in Japan," which was set up with the aim of students learning inside and outside school elementary school teachers need to have the ability to teach using one tablet terminal per child.

However, according to MEXT data on the status of ICT teaching ability of teachers, "the ability to teach using ICT in the classroom" and "the ability to teach students to use ICT" are low.

Therefore, we think it is important to clarify the issues that in-service teachers recognize and what they think should be done to solve them to improve their teaching ability when using one tablet terminal per child.

This study aimed to clarify the issues and future prospects for elementary school teachers regarding the realization of the GIGA school concept by analyzing answers obtained through a verbal interview survey of elementary school teachers about classes using ICT with one tablet terminal per child.

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Methods

Our subjects were 17 elementary school teachers (7 males, 10 females, with an average of 14 years of teaching experience) in Tokyo who are not designated schools for ICT promotion. We conducted a verbal interview survey with the 17 teachers.

Three interview questions were asked: 1) “What do you think about classes using ICT?” 2) “What are your perceptions about one tablet terminal per child?” and 3) “What kind of teacher training on the use of ICT would you like to receive in school?”

All responses obtained were converted to text. The contents were subjected to co-occurrence network analysis using KH Coder 3 software for quantitative text analysis. Quantitative text analysis is a method of organizing text-type data through quantitative analysis methods and conducting content analysis. In co-occurrence network analysis, two words are considered strongly related if they appear (co-occur) simultaneously in the same sentence. In this study, we used subgraph detection to analyze co-occurrence networks. Through subgraph detection, we can establish relationships by connecting codes with a strong co-occurrence using a line. A circle representing a larger co-occurrence relationship indicates a higher number of occurrences.

Furthermore, we can show the relationship between words relatively accurately using the Jaccard coefficient; which is a measure of similarity between two sets. The stronger the relationship; the closer it is to 1. The Jaccard coefficient of 0.1 or more indicates that the sets are related, and 0.2 or more indicates that these are strongly related, and 0.3 or more indicates that these are very strongly related.

Results

Figure 1 shows the results of the co-occurrence network analysis for Question 1: “How do you feel about ICT-based teaching?” Co-occurrences were detected through subgraph detection (mediation), with the unit of aggregation being a paragraph, the minimum number of occurrences set to two, and a Jaccard coefficient of 0.3 or higher. The total number of extracted words was 625 and 292 words were used; these were then extracted into 6 categories. The uncolored terms in the figure are single terms that do not form a subgraph with the other terms.

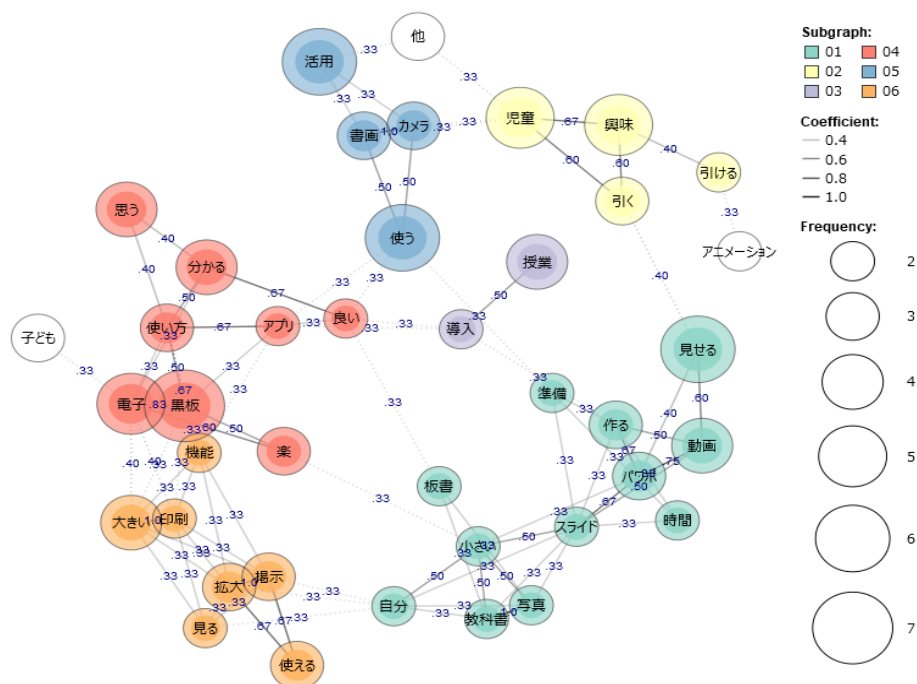


Figure 1 Results of the co-occurrence network analysis (Question 1 : What do you think about classes using ICT?)

(01) Twelve terms were extracted. The Jaccard coefficient for “PowerPoint” and “video” was 0.75, that for “PowerPoint” and “slides” was 0.67, and that for “PowerPoint” and “create” was 0.67, indicating that these had stronger relationships than the others. Specific responses included “I use PowerPoint to make slides and videos.” The specific responses were “I make PowerPoint slides and videos. However, I am too busy working with them.” These responses were interpreted as “teachers use presentation software to teach ICT classes when they have the time.”

(02) Four terms were extracted. The Jaccard coefficients for “children” and “interest” were 0.67, while for “children” and “pull” it was 0.60, indicating stronger relationships than the others. The Jaccard coefficient for “children” and “attract” was 0.60, which was stronger than the others. This is good because it shows that this method attracts children's interest. It is easy to show them an ideal way to write notes. These responses were interpreted as “teachers recognize that they can attract students' interest using ICT.”

(03) Two terms were extracted. The Jaccard coefficient of “class” and “introduction” was 0.50. Specific responses included “I show images and videos of my research in the introduction of the class.” This response was interpreted as “teachers use ICT in introducing their class.”

(04) Eight terms were extracted. The Jaccard coefficient for “electronic” and “blackboard” was 0.83, that for “application” and “usage” was 0.67, and that for “understand” and “good” was 0.67, which were more strongly related than the others. Specific responses included “The screen of the electronic blackboard is large, so it is easy to enlarge and display,” “There are many good points, but I do not know how to use the installed applications,” and “I think the electronic blackboard has many good points, but I do not know how to use the installed applications.” These responses were interpreted as “Teachers understand the advantages of ICT devices such as the electronic blackboard but do not know how to use them, and they recognize that the electronic blackboard is not necessary when not in use.”

(05) Four terms were extracted. The Jaccard coefficient for “drawing” and “camera” was 1.0, that for “drawing” and “using” was 0.33, and that for “camera” and “using” was 0.33, indicating a stronger relationship than the others. Specific responses included, “I use the camera without thinking about it,” “As for others, I have not been able to do so, although I have been thinking about it because I cannot prepare quickly,” and “It is easy to show the students that we are working on this page using a video camera. However, I do not know how to use other methods, so I rely on writing on the board.” These were interpreted as “teachers are able to use the camera in the class, but they are not able to use other ICT devices and software.”

(06) Seven terms were extracted. The Jaccard coefficients of “magnification” and “display” were 1.0, “magnification” and “usable” were 0.67, and “display” and “function” were 0.33, which were more strongly related than others. Specific responses included “The screen of the electronic blackboard is large, so it is easy to enlarge the display” and “I know that there are functions other than magnification, but I do not know how to use them. I think it would be easier to use them.” These responses were interpreted as “Teachers know that there are functions other than magnification, but they do not know how to use them.”

Figure 2 shows the results of co-occurrence network analysis for Question 2: “How do you perceive a one-person, one-machine environment?” The following settings were used for KH Coder 3: the unit of aggregation was a paragraph, the minimum number of occurrences was two, the Jaccard coefficient was 0.3 or higher, and the method of detecting co-occurrence was subgraph detection (mediation). The total number of extracted terms was 531; among these, 242 terms were used then divided into 7 categories.

(01) Eight terms are extracted. The Jaccard coefficient for “difference” and “computer” was 0.67, while that for “difference” and “teacher” was 0.50, indicating a stronger relationship than the others. Specific responses included “I feel uneasy because there are differences in the skills of children and teachers in using computers and tablets,” “I am worried because there is a difference in the skill to use computers and tablets among children and teachers,” and “If there is a difference among teachers, some students may not use computers and tablets in class, and there will be a difference among classes.” These responses were interpreted as “teachers recognize that it is difficult to use computers and tablet devices in the classroom because of the differences in skills among individuals.”

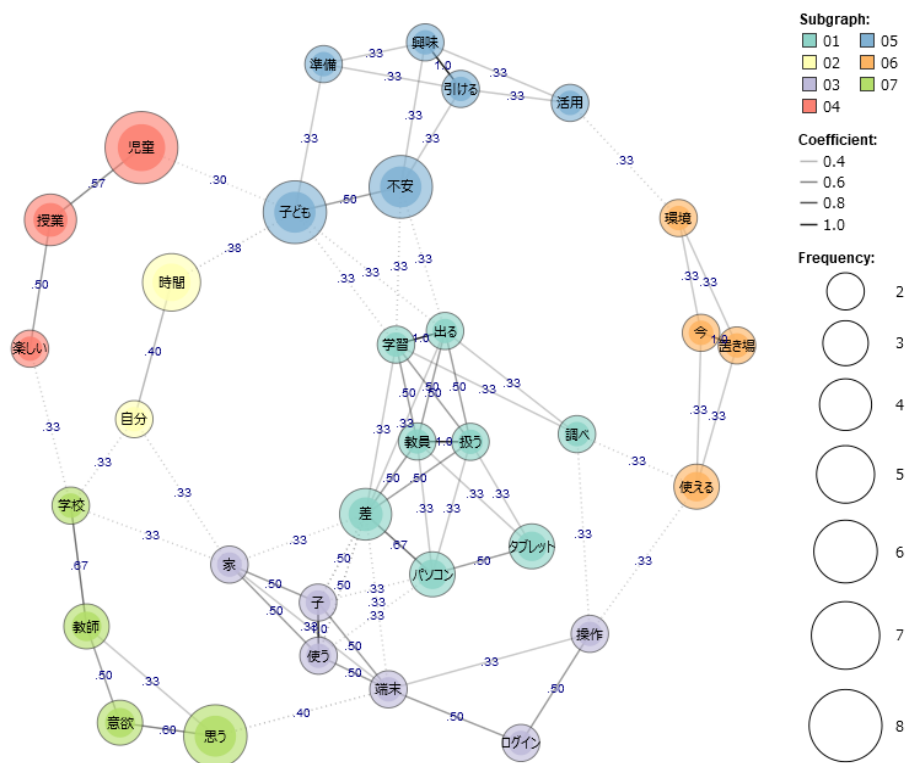


Figure 2 Results of the co-occurrence network analysis (Question 2 : What are your perceptions about one tablet terminal per child?)

(02) Two terms were extracted. The Jaccard coefficient of “self” and “time” was 0.40, which was more strongly related than the others. Responses such as “I don’t have time to learn” were interpreted as “Teachers do not know how to use the terminals and how to utilize them, and they do not have enough time to learn.”

(03) Six terms were extracted. The Jaccard coefficient for “terminal” and “login” was 0.50, that for “terminal” and “use” was 0.50, that for “home” and “child” was 0.50, and that for “home” and “use” was 0.50; indicating stronger relationships than the others. Specific responses included “I think it takes time to login the ID and password of the terminal, but I think children can operate it smoothly once they login” and “There is a difference between children who use computers and terminals at home and those who do not.” These responses were interpreted as “teachers are worried about the difference in skills between children who use computers and terminals at home and those who do not.”

(04) Three terms were extracted. The Jaccard coefficients for “children” and “class” were 0.57 and 0.50, respectively, indicating that these were more strongly related than the others. Specific responses included “I think children enjoy school more and are more willing to participate in classes. Last year, we held a class using Scratch with one terminal for each student and the students enjoyed the activity. I really want to do so.” This response was interpreted as “teachers recognize that classes with one terminal per student are fun for students.”

(05) There were six terms extracted. The Jaccard coefficient for “interest” and “attract” was 1.0, and that for “children” and “anxiety” was 0.50, indicating stronger relationship than the others. Specific responses included “I can attract children's interest, but I am anxious because it takes time to prepare” and “I am concerned about using it with first graders, but I want to use it because it is interesting.” These responses were interpreted as “Teachers favor the use of one terminal per student because it attracts children's interest, but they feel uneasy about the preparation time.”

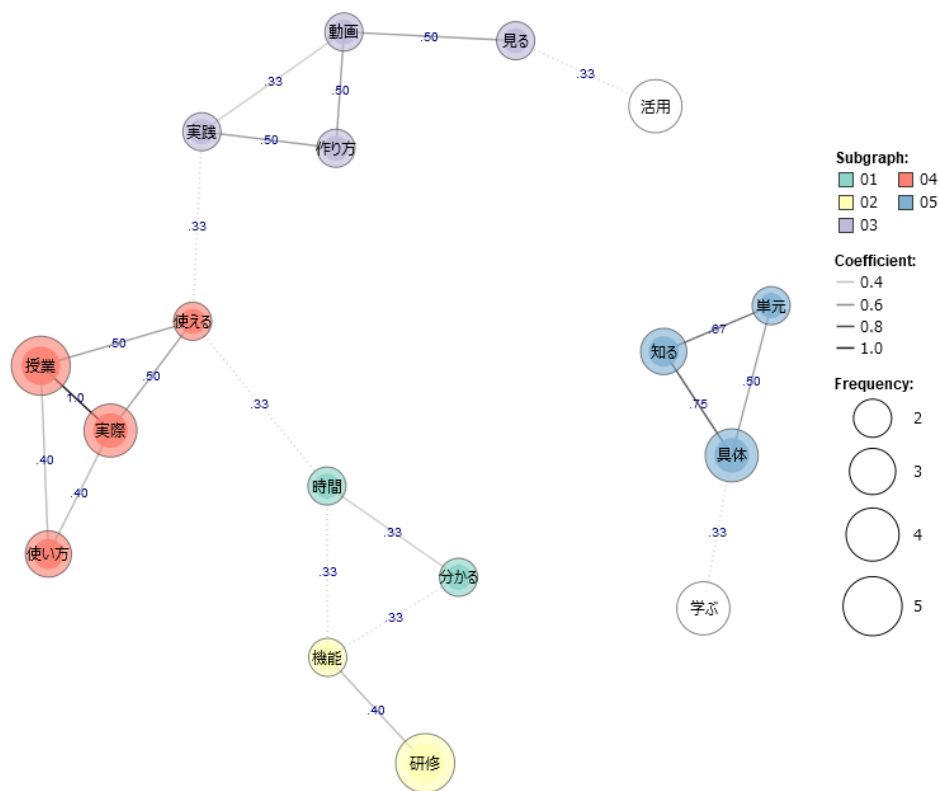


Figure 3 Results of the co-occurrence network analysis (Question 3 : What kind of teacher training on the use of ICT would you like to receive in school?)

(06) Four terms were extracted. The Jaccard coefficient for “now” and “environment” was 0.33, and that for “environment” and “place” was 0.33, indicating stronger relationships than the others. Specific responses included “In the current classroom environment, the shelves are full of keyboard harmonicas and paints and there is no place to put them.” This response was interpreted as “teachers are aware of the need to improve the environment in order to realize a one-person-one-terminal environment.”

(07) There were four terms extracted. The Jaccard coefficient for “school” and “teacher” was 0.67, and that for “motivation” and “think” was 0.60, indicating stronger relationships than the others. Specific responses included “I think children will enjoy school and be motivated to participate in class.” This response was interpreted as “I think children will be motivated to use ICT, but I am worried that the burden on teachers will increase.”

Figure 3 shows the results of the co-occurrence network analysis for Question 3: “What kind of teacher training on ICT use would you like to receive in school?” The unit of aggregation was a paragraph, the minimum number of occurrences was set to two, the Jaccard coefficient was 0.3 or higher, and the method of detecting co-occurrence was subgraph detection (mediation). The total number of extracted words was 322; among these, 138 words were used and sorted into 5 categories. The uncolored words in the figure are single words that do not form a subgraph with the other words.

(01) Two terms were extracted. The Jaccard coefficient for “time” and “understand” was 0.33, which indicated a stronger relationship than the others. Specific responses included “I want to learn only the specific information that I need, rather than functions that I may or may not use.” This response was interpreted as “the teachers wanted to learn what they actually needed in the training, not what would take time to learn.”

(02) Two terms were extracted. The Jaccard coefficient for “function” and “training” was 0.40, indicating a stronger association than the others. Specific responses included “I cannot understand the

functions that can be done! I do not understand these functions” and “I would like to receive training that emphasizes practice rather than theory because I cannot master the application simply by listening to how to use it.” These responses were interpreted as “teachers wanting to receive practical training, such as how to actually operate terminals and applications.”

(03) Four terms were extracted. The Jaccard coefficient of “video” and “watching” was 0.50, while that of “video” and “how to make” was 0.5, and that of “practice” and “how to make” was 0.50, which indicated stronger relationships than others. Specific responses included “I want to learn how to make practical PowerPoint videos and videos, etc.,” and “It would be easier to visualize if I could actually observe a class using the application or watch a video of a class.” These responses were interpreted as “Teachers want to learn how to create videos that can be used in class and how to actually use the applications and software.”

(04) Four terms were extracted. The Jaccard coefficient of “classroom” and “actual” was 1.0, that for “classroom” and “usable” was 0.50, and that for “actual” and “usable” was 0.50, which indicated that these were more strongly related than the others. Specific responses included “I would like to conduct a mock class using the application, with the teacher actually playing the role of a child” and “I want to know how to use the application in a concrete way that will lead to actual classes.” These responses were interpreted as “teachers want to try something directly related to teaching, such as actually giving a mock class.”

(05) There were three terms extracted. The Jaccard coefficients for “know” and “concrete” were 0.75 and 0.67, respectively, which were stronger than the others. Specific responses included “I want to know how to use the system in specific subjects and units. I also want to know how to effectively deal with these problems” and “I want to know many things about the specific units.” These responses were interpreted as “Teachers are aware that they want to receive training on ICT for specific subjects and units.”

Conclusion

This study aimed to clarify the issues and future prospects for elementary school teachers regarding the realization of the GIGA school concept by analyzing answers about classes using ICT with one tablet terminal per child obtained through a verbal interview survey of elementary school teachers.

Responses to Question 1 regarding ICT-based classes showed that elementary school teachers found that aspects such as a magnified display using a picture camera and other methods were good because they could attract students' interest. However, they did not know other methods or did not have time to learn how to handle them, thus they were not able to use them.

Regarding Question 2, teachers' perceptions of the one-child-at-a-time environment were the same as in Question 1. Again, it is good because it attracts children's interest, but it is difficult to use because it would increase the burden on children. Another concern was that there would be differences in children's skills due to differences in their home environments.

Regarding Question 3, the perception of training on ICT use revealed that some teachers wanted to learn how to use ICT in specific subjects or units.

Based on these findings, elementary school teachers have not experienced actually observing or practicing ICT-enhanced classes. Therefore, they view these negatively, saying that they do not know how to teach, do not have time to prepare, and are not sure if they can teach well through this platform.

In order to address concerns such as “I would like to learn about specific subjects and units,” future planning should consider teacher training within the school and provide opportunities for teachers to observe classes with one terminal per child as well as participate in research classes, practice this, and receive comments from others.

One of the issues to be addressed in the future is whether teachers' concerns, support, and nature of training differ depending on their teaching experience. In addition, it is expected that teachers' views on teaching and learning, which are included in their beliefs, will affect the conduct of classes using a one-child-per-usage terminal and the content required for teacher training.

Acknowledgements

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TITLE: Designing Music Instructional Materials with a Multi-Discipline Teaching Perspective

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During the summer of 2021, a rebuild of the district created method book for the elementary band department was initiated and version 1 of the new book was created. An evaluation of the previous method book found no clear vision for how the learning process occurred in music instruction, what skills should be taught in what order, missing visuals, and no clear connection to pedagogical techniques from other instructional areas to teach abstract concepts, spatial understanding, and comprehension. All of these issues rendered the previous publication ineffective in any instructional setting.

An examination of current instructional materials showed an overlooking of the importance of reinforcement of the connection between known concepts and new concepts being learned.

Rethinking how instructional materials for the beginning musician are created can lead to an increase in understanding and in performance of music. Pedagogical techniques used to instruct math, reading, spatial reasoning, visual comprehension, and other areas of education can be implemented into the design of music instructional materials used in group and individual settings. Therefore, for the rebuild of the new book, a focus was placed on creating instructional materials which reinforced learning using curriculum materials designed to mimic reading and mathematical instruction found in the primary grades to teach spatial understanding, to understand the abstract connections between what is seen and performed, to build physical connections to what is seen on page and performed by the performer, and to understand the backwards connections between rhythms. The design aspects implemented were also influenced by student comments which paralleled instructional techniques which made things easier to read and comprehend. Also taken into consideration were comments which indicated design features that detracted from learning and comprehension.

Throughout this presentation, we will explore the design process and highlight specific examples of how instructional design techniques from other disciplines can be incorporated into the instructional design of music instructional materials. By understanding the importance of the design of instructional materials for music, scaffolding from one concept to another can be done more effectively and efficiently in the learning process. A multi-disciplinary approach to curriculum design reinforces educational goals in the general education classroom, the music classroom, and the educational institution. Participants will leave with strategies which can be implemented right away in their own music education programs for designing curricular materials and incorporating instructional ideas from other classrooms and areas of study into instruction.

After using the newly designed materials for a semester, anecdotal evidence indicated an improvement with accuracy of rhythmic performance in all aspects of music. Students were able to properly perform longer rhythms, not cutting them off early or holding too long. Students were read the music notation faster and comprehended the meaning faster of new concepts as these concepts were scaffolded by adding rhythms together, with ties, before half notes, dotted half notes, and whole notes were introduced. Students understood how the placement of a notehead or stem in a measure indicates what beat or count it is connected to inside the measure. Comparisons from what was placed directly above,

in another line of music, could be compared vertically with what was written in another line with all measures having the same horizontal size.

Organizing the Learning Process of Engineering Students: A Case Study

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Abstract:

This paper presents the effectiveness of the self-directed, peer-viewed, project-based learning strategy that was applied to the Electronics and Circuits II course which is part of the Fall 2021 Computer and Electrical Engineering curriculum at Chapman University. As an outcome, we are aiming to teach students how to organize their learning process and increase students' autonomy. Organizing the learning process can help students to perform better not only at school but also when they join the workforce. To reach this goal, during the first two weeks of the course, we ask our students to come up with a project/design idea based on the outline. When the title is approved and discussed, students will be asked to document their progress weekly on a blog. The structure of the weekly report is designed by the instructor. Not only do students benefit from documenting their work and thought progress online, but this is something that they can add to their CV and share with their future employers. Each week, students are asked to assess the progress completed by their peers anonymously and provide some constructive comments. We will also present our analysis of the qualitative and quantitative metrics based upon our surveys. This course is designed to improve students' creativity, collaboration, and information sharing ability. In addition, we are aiming to promote critical thinking skills by implementing peer review and peer learning. If the method is successful, for future work, the effectiveness of the method to other disciplines, such as mathematics and physics, will be studied.

Index: education; engineering education; circuit analysis

Introduction:

Electronics and Circuits II is offered for the first time in the newly founded Electrical Engineering at Chapman university. The course is required for Electrical Engineering major students and is an elective for software and computer engineering students. Because the course is new, it is important to make sure that the course is highly successful to keep the enrollment high.

The objectives of this 3-credit course are to teach students about the circuit analysis methods when the circuits are powered with both direct and alternative sources. Also, students are learning about different amplifiers, filters, and also get introduced to printed circuits boards. In order to teach this course effectively, it is vital to have an integral hands-on project-based component. Project-based learning has been shown to be highly effective and been widely adopted in teaching circuits and systems [1]– [8].

Because this course is an important upper-division requirements for EE students to learn about fundamentals of Electrical Engineering, the hands-on project component can tremendously help the learning progression to meet the learning objectives of the course. However, conventionally, students finish their projects either individually or with the help of their assigned group consists of two or more group members. Therefore, it is difficult for the whole class to learn from each other and collaborate on a project. As a result, students can miss the opportunity to cooperate with other class members with diverse skill sets.

This paper will present a method to enhance collaboration among the whole class while finishing a project. It will also present the results of the first implementation of this method.

LITERATURE REVIEW:

In order to change how the project part of the course conducted, a literature review was performed to determine how other institutions address some of these challenges. The questions to be answered were, what are the novel methods to integrate a project in a course to increase the collaboration and critical thinking of students. Lee et al. [1] have discussed how organizing a contest at the end of project can enhance the learning outcome of students and motivate them to learn better. Kellett [2] examined the importance of a design project that forces students to recognize the basics of advanced technology of modern computer architecture. Lei et al. [3] explains how an integration of a particular concepts in the final project can help students to learn distinct important topics. Lamar et al. [5] present the introduction of problem-based learning (PBL) in a particular course. The influence of the introduction of PBL is discussed by the authors and although the application of PBL is not easy and requires expertise and resources but can be very beneficial to students if applied correctly. Although there are several works on project-based learning, it was not possible to find any courses with the presented method in this paper. There is a paper by Lin et al. [7] that explains how using a blog as a tool to encourage students' reflective learning and communication can be effective. Although documenting in blog is discussed in this research, the focus of the study was not on a project have direct interaction with peers especially internationally. Wang et al. [9] and Yao et al. [10] have discussed the importance of using blogs in education. But the goal to achieve was completely different than what is discussed here.

METHOD:

Circuit Analysis course is typically a required course for all Electrical Engineering students. This course is also can be taken by Computer Engineering majors. The course is a junior-level course. It is offered as Circuit Analysis I, and Electronics and Circuits II. Circuit Analysis I is offered in spring Semester and Electronics and Circuits II is offered in fall Semester. Circuit Analysis I is the prerequisite for Electronics and Circuits II. This paper presents a novel method to conduct the projects for Electronics and Circuits II. This 3-credit courses met for 150 minutes for lecture, and 50 minutes of lab per week. The limitation on time did not allow students to finish their final projects during class time. Therefore, students started to work on their projects outside of the class period. Instructor assigned the last week of lab for students to work on finishing their project and get some individualized time to ask any question they might have. The project title

was introduced the second week of the class. Students were required to start with making a color organ using the concepts such as amplifiers and filters that they learned in class. Moreover, they were required to modify /add to the basic color organ while having a specific customer for their design in mind. Class had only 11 students and students were grouped in teams of 3 or 4 members. They were required to document their results of the assigned steps in a blog. This way each group was exposed to the progress of other groups. The project progress was divided into five different steps which they had to complete by certain deadlines.

Namely:

Step 1: Identify a Need: In this section students were required to describe their design and talk about their specific cost

Step2: Design Criteria and Constraints: Here students were required to explain their design criteria. Meaning the requirements that they use to make decisions about how they build and evaluate their product. For example, what frequencies are filtered, or what should be the gain of the amplifier.

Also, they should discuss their design constraints. The factors that limit the engineer's flexibility. for example, time, cost, and knowledge.

Step3: Evaluate Alternative Designs and Create Your Own Test Plan: For this step a thorough research should be done into possible solutions and see what different approaches may meet design objectives. Students were required to consider at least two alternative designs and consider either modifying, using, or inventing their own solution. In their blogs each group was requested to show how they evaluate alternative designs.

Then they were required to explain their initial test plan of how they will test the design criteria and constraints they mentioned in Step 2. (Deadline December 3)

Step 4: Test and Evaluate the Prototype: It should be discussed how the prototype is tested against the design criteria in step 2 to show how well the product meets the need. (Deadline: December 10)

Step 5: Presentation: For this step, a video of the completed design should be added. (Deadline: Final Date)

A mentioned before all these steps were completed during one semester and was presented on each team's blog. In this section it was required for them to test the prototype against the design criteria in step 2 to show how well the product meets the need.

Students were encouraged to comment on other's groups work and help other groups with trouble shooting if needed. The goal was to foster organizing skills, and peer learning and reviewing among students. The deadlines were all set the last month of the semester.

RESULTS:

In order to evaluate the success of the “journaling” the project steps online, qualitative and quantitative data evaluations and grades was examined. These results are based on only one course with a limited number of students.

A. Quantitative

Students wrote two exams during the semester and one final exam. The quantitative analysis examined the averages for exams, the overall final grades, and final project to see if finishing the project following the proposed method had any impact on final grades and to identify if there was any difference in performance between the final and other exams during the semester. Fig. 1 shows a summary of the result for the final and other exams based upon the course format. The results indicate that the final grade dropped by approximately 5 points compared to the other exams. The results also show that overall, in average students performed better mid-semester. It seems that finishing the project following the proposed method did not have any specific impact on students’ performance. This may indicate that because of the heavily loads that student have at the end of the semester, students are not mastering the materials as much during the last weeks of the class considering there was no change in delivering the content.

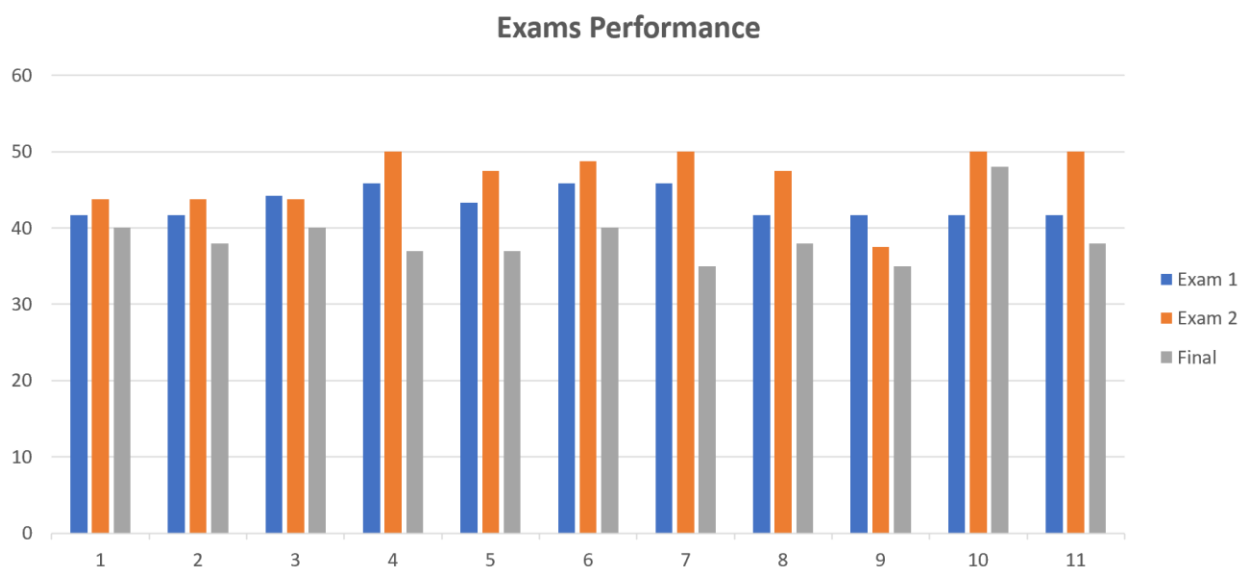


Figure 1. Exams Performance

B. Qualitative

The qualitative analysis examined the responses to the questionnaire provided by the instructor about the project. The categories were learning, format, timing, and instruction. There were some multiple choice questions and some questions that needed them to write down the responses. The summary of the multiple-choice questions is shown in Table 1. The qualitative feedback indicates that most students felt that documenting the steps of the project online was effective. Also, the results show that sharing the steps added for value to their education and comprehension of the material. 55.5% of students would rather the project to start mid semester. There were also some questions on the questionnaire that needed written responses. The first question asked students if saving the project steps on a blog helped organizing their learning process. The majority expressed that blog is a good visual reminder of the steps and helped them stay organized. The next question asked them in their opinion what the best method is to conduct a project at school. Again, majority suggested that the way it was conducted in class was very effective. Following question asked, "Do you think it is beneficial for their education to save all the projects they finish during undergraduate studies on a personal website?". Students believe that that can be a good resume builder. Also, a website would make it easier for them to see and access all information throughout the years in a cohesive site.

Questions	
From levels one to five, one being the most effective, how effective you think documenting the steps of your project is?	4 from Likeart scale from 1 to 5.
Would sharing and seeing the steps of other groups adds any values to your education?	100% of students answered yes.
Do you think peer review can enhance your critical thinking?	66.7 yes, 33.3 no
Comparing Circuit I and Circuit II, do you think the way project was conducted added value to your understanding of the materials or no?	100% yes
When do you think is the best time to start working on a project?	22.2% Beginning of the semester, 55.6% Mid semester, and 22.2% The last two weeks of the semester.

Table 1. Course Questionnaire Responses

CONCLUSIONS:

In summary, this paper has presented a summary of a new approach to present a project assignment for Electronics and Circuits II. It involved asking students of each project team to create a blog to document the predefined steps of the project during the semester. The goal was to train students to organize the steps of their work for future reference. Also, by having their work published online, we were trying to foster collaboration and peer learning during the different phases of the project. This work is innovative because typically projects are done by groups separately and students get exposed to other groups work at the end of the semester not during. The course was offered for the first time in our department in fall semester 2021 with promising results. For most evaluation categories the method seems promising and successful. The component that requires attention based on quantitative and qualitative results is the timing of the project. One recommendation may be to put aside more time during mid semester so that they would not be rushed at the end of the semester to finish the work. Due to the small class size, the author is hoping to extend and apply the modified version of this method to other Engineering courses final project to verify the effectiveness of the method more.

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Engaging, Connecting & Supporting-Oh My! Strategies for Remote Full-Time Employees

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Engaging, Connecting & Supporting-Oh My! Strategies for Remote Full-Time Employees

Building teamwork and a sense of community in a strictly virtual environment poses challenges. During the fourth quarter of 2019, the university went through a large restructuring which resulted in the creation of new departments. At that time, many faculty members transitioned into new programs working with new colleagues for the first time.

Typically, university staff gather once or twice a year for in-person team building events, professional development and the celebration of graduation. Due to the national health pandemic, all in-person events were cancelled for full time faculty at the university. In various staff meetings, some faculty expressed feeling disconnected from one another and isolated in their work. The Engagement Committee, within the Department of Education and Liberal Arts (DEL), sought to minimize social isolation and improve the feeling of team support through various new initiatives scheduled throughout the year of 2020. The purpose of this research is to examine the effectiveness of these initiatives in increasing engagement and connectedness while minimizing the feeling of social isolation and frustration amongst faculty working remotely.

Research reveals that “working from home or other remote locations may increase feelings of social isolation and loneliness by limiting opportunities to develop meaningful relationships with colleagues and lead to a deterioration of social relationships at work” (Golden, 2006, p.319). Certainly, this group of employees was used to working remotely but with the increased complexities due to the pandemic in their personal life and inability to travel, this sense of disconnect seemed to have intensified. Likewise, “many have found that the virtual workplace negatively affected communication and interaction with co-workers and managers” (Ellison,

1999, p.338). In a study by Wilson and Greenhill (2004), social isolation and lack of communication with co-workers are indicated as the main disadvantages of working remotely.

Organizational culture is an important aspect in the role of job satisfaction and commitment to a workplace (Batugal, 2019). “Creating an organizational culture that values and respects each member of the organization is effective in producing higher levels of organizational commitment” (Batugal, 2019, p. 123). According to Maynard et al (2019), when co-workers are more familiar with each other, they tend to use and share ideas of others. Likewise, Killumets et al (2015) found that team interpersonal processes are critical in positively impacting an employee’s commitment to the organization, which then enhances their intent to remain at the workplace. With the recent changes in organization structure, effective communication and building of relationships was especially important.

After reviewing current literature in the field, there was a noted trend indicating that when employees work in a setting where they feel connected, engaged and supported, they are more committed to their work. This existing body of research aligns with the hypothesis that the implementation of the DEL virtual activities would lead to increased engagement and connectedness while minimizing feelings of social isolation and frustration while working remotely. Therefore, through this research project, the researchers examined how participating in virtual activities and events with co-workers can lead to increased connectedness and engagement and minimize feelings of social isolation and frustration/burnout in the workplace.

Specifically, the research considered the following:

1. What reported factors affected participation in DEL Engagement activities in 2020?

2. What types of engagement activities were attended in 2020?
3. How did the DEL Engagement activities offered in 2020 impact the perceptions of engagement among the DEL fulltime faculty?
4. How did the DEL Engagement activities offered in 2020 impact the perceptions of connectedness among the DEL fulltime faculty?
5. How did the DEL Engagement activities offered in 2020 impact the perceptions of support among the DEL fulltime faculty?
6. How did the DEL Engagement activities offered in 2020 impact the perceptions of isolation among the DEL fulltime faculty?
7. How did the DEL Engagement activities offered in 2020 impact the perceptions of frustration among the DEL fulltime faculty?

Methodology Procedures

This study was a mixed-methods project. Researchers sent a short survey through e-mail for all participants to complete on their own. Surveys were anonymous, allowing respondents to respond freely. Many of the survey questions were quantitative in nature, but some were open-ended. Researchers then coded and correlated those answers by themes. There were no incentives used in exchange for participation.

Researchers used the survey tool, Qualtrics, to collect responses anonymously. Questions were designed for participants to share information regarding the frequency in which they attended offered events, which events they would like to see continue, and why they chose to participate in those events. In addition, researchers sought feedback in relation to how

participants felt in terms of their engagement, connectedness, burnout and isolation at the beginning and end of 2020 after participating in the activities.

No proprietary information related to the University of Arizona Global Campus was utilized in this research project. Researchers analyzed the quantitative portion of the surveys through the Qualtrics program. Researchers then used descriptive statistics on the qualitative responses to look for patterns and consistencies in open-ended questions.

The survey tool collected responses anonymously. Additionally, no identifying information was included with the survey data being collected only in aggregate. The identities of participants were protected in a spreadsheet saved on the researchers' computers. The results from the survey and research was used by the Department of Education and Liberal Art's Engagement Committee to inform future initiatives that align with the committee's mission statement. In addition, the results were shared with college and university leadership and presented at higher education conferences.

Participants

Twenty-nine full-time faculty members within the Department of Education and Liberal Arts at the University of Arizona-Global Campus received a survey. The target sample size was 80% of the full-time faculty who received the survey. In the end, researchers received 23 completed responses for this study, allowing them to have a representative picture of the views of the full-time faculty within the Department of Education and Liberal Arts who were included in the various community building initiatives throughout 2020. It is important to note that the five researchers who conducted this research were a part of sample size. There were no

identifiable at-risk populations within this group. Only those who did not sign the informed consent were excluded from this study.

Results

In order to better understand the survey results, the following table explains the various initiatives respondents were asked about:

Initiative	Description
Self-Care Challenge	A monthly wellness focus on various topics (including sleep, movement, unplugging from tech, etc.) where each week faculty received an email to note the benefits they were experiencing from the focus and had the opportunity to earn an electronic participation badge.
Virtual Greeting	Email cards for special events in people's lives.
Virtual Gift Exchange	An opportunity to send a present and come together on Zoom to open collectively together before the holidays.
Beachside Chats	Monthly informal "chat" format with leadership where faculty could submit questions ahead of time
DEL Water Cooler	Using the Band app, a social platform to allow others to share about their personal lives, anecdotes or funny stories
Monthly Meetings	A monthly department meeting to keep on top of initiatives, celebrations, and programmatic updates.

Happy Hours	Happy Hour-an informal drop-in virtual happy hour after work hours to stop by and chat with colleagues.
DEL Connections	An online Canvas page that allows for a professional platform for sharing.
Coffee Conversations	An informal drop-in coffee hour in the morning to stop by and chat with colleagues.

Results were drawn from the Full-time DEL faculty's responses to the Qualtrics survey. In the survey, 84% of respondents indicated that their participation in the activities offered, enhanced their feeling of being a part of the Department of Education and Liberal Arts (DEL) community. And 89% of respondents indicating that the activities made them feel more connected.

Additional data indicated that:

- 41% indicated that their participation was based on a desire to strengthen connections
- 46% noted that they participated because the activities sounded fun, and the remaining
- 13% reported participating to reduce the feelings of isolation from the pandemic.

Survey data were collected with the intent to capture not only why people reported they were attending these events, but also trying to understand why people were not participating in the initiatives.

- 18% of respondents indicated scheduling conflicts
- 14% of respondents indicated "not interested" in the initiative

Additional data indicated the Beachside Chats had the most participation with 91% of respondents indicating they participated, followed by the Self-care challenges, then the Monthly meeting fun and Holiday Gift exchanges, and lastly 64% indicated participation in a holiday greeting we sent out to our associate faculty.

Upon reviewing the qualitative data, the research has made the Engagement Committee more aware of the language we are using when communicating with our colleges and has reminded us to keep in mind that not everyone comes from the same background. The research also highlighted that there will be some colleagues who choose not to participate because they are not looking for these types of social connections and engagement through work. Finally, in the qualitative responses, we discovered that we need to balance the format of events between synchronous and asynchronous formats.

Discussion

While some engagement initiatives that were less used or visited, researchers still believe that these hold a purpose so will continue them but less often. Happy Hours and Coffee/Conversations were frequented regularly but by a smaller portion of the staff. However, those who attended were regulars, so we did not want to discontinue those, we just decreased the frequency. Then the DEL Connections and Band app are less frequented, so we will be discussing those more in future engagement committee meetings to see if we continue with those or remove them from the list of initiatives. The Engagement Committee will continue to implement the initiatives which received high scores indicating that they are engaging, connecting and supporting our colleagues.

Conclusion

In conclusion, through the implementation of meaningfully planned initiatives, it is possible to facilitate experiences in a remote work environment to allow colleagues to become more engaged, connected and supported with their peers. It is important to consider the unique structure and needs of each department in which initiatives are being implemented and to determine which types of activities align with the needs of the employees.

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Survey Questions

1. Were you originally hired as:
 - a. a full-time remote employee
 - b. onsite/hybrid employee
 - c. prefer not to answer

2. Please indicate if you participated in any of the following DEL Engagement Committee activities in 2020?

Virtual Gift Exchange	Yes	No
Self-Care Challenge	Yes	No
Virtual Holiday Greeting/ Thanks for AF	Yes	No

3. How frequently did you participate in the following DEL Engagement Committee activities in 2020?

4. **If you participated in any activity above, please respond to the following:**

a. Of the events attended/offered, which would you like to see continued?

- Happy Hour
- Coffee Conversations
- Monthly Meeting Fun
- Beachside Chats
- DEL Connections Canvas Page
- DEL Water Cooler
- Virtual Gift Exchange
- Self-Care Challenge
- Virtual Greetings for Associate Faculty

Activities	Always	Often	Sometimes	Never
Happy Hours				
Coffee Conversations				
Monthly Meeting Fun (wear your favorite hat, etc.)				
Beachside Chats				
DEL Connections Canvas Page				
DEL Water Cooler				

Other _____

b. Which of the following reasons influenced your decision to participate in the DEL Engagement Community activities ____

To strengthen relationship with DEL Colleagues	The activities sounded fun/engaging	Feeling disconnected given the pandemic	Other (please explain)
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5. If you responded “no” or “never” to all activity questions, what was the main reason?

Scheduling conflicts	I do not enjoy these types of activities	Other (please explain)
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For the purpose of this survey the following terms are identified and described/defined below

<p>Engagement The extent to which employees feel passionate about their jobs, are committed to the organization, and put discretionary effort into their work.</p>	<p>Connectedness The extent to which an employee is connected to their tasks, team and technology. I.e., the degree to which individuals perceive that they have positive social relationships with others in the workplace</p>	<p>Isolation feelings of emotional unfulfillment when one lacks meaningful connections, support, and interactions with others</p>	<p>Frustration Frustration is characterized as the stage prior to burnout, a psychological process or series of attitudinal and emotional reactions. Burnout as characterized by being cynical of relationships with others, feels callous toward others and the organization (Maslach, Schaufeli, & Leiter, 2000)</p>
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6. On a scale of 1 to 4, please rate the following: At the ***beginning*** of 2020, within the DEL, how would you rate your level of _____?

	Poor	Fair	Good	Excellent
Engagement	1	2	3	4
Connectedness	1	2	3	4
Isolation	1	2	3	4
Frustration	1	2	3	4

Why/please explain

7. On a scale of 1 to 4, please rate the following: At the ***end*** of 2020, within the DEL, how would you rate your level of _____?

	Poor	Fair	Good	Excellent
Engagement	1	2	3	4
Connectedness	1	2	3	4
Isolation	1	2	3	4
Frustration	1	2	3	4

Why/please explain

8. Is there a relationship between your feeling of support from your DEL colleagues as a remote employee and your level of _____?

Engagement	Yes	No	Please explain
Connectedness	Yes	No	Please explain
Isolation	Yes	No	Please explain

Frustration	Yes	No	Please explain
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9. How have activities offered impacted your view of being a part of the DEL community? These activities have _____

enhanced my feelings of being a part of the DEL community?	Yes	No	Please explain
allowed me to feel connected to my virtual colleagues?	Yes	No	Please explain

10. What suggestions do you have for new Engagement Committee Initiatives in the coming year?

Impact of Emotional Stability and Conscientiousness on Procrastination Behavior

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Abstract

The purpose of this study is to investigate the correlation between conscientiousness, emotional stability and procrastination using the Pearson r correlation coefficient. This study also aims to find notable differences between active and passive procrastination in their correlation with conscientiousness and emotional stability. The study was carried out using a 31 question survey with 72 individual participants. Conscientiousness was found to have a moderate negative correlation coefficient with procrastination of $r = -0.420$. Furthermore, conscientiousness also has a far lower correlation coefficient of $r = -0.095$ with active procrastination. Emotional stability was found to have a moderate negative correlation coefficient of $r = -0.349$ with procrastination. Furthermore, the correlation coefficient increased when applied to only active procrastinators to $r = -0.432$. This study shows a correlation between conscientiousness, emotional stability, and procrastination, as well as the effect active or passive procrastination has on these personality traits.

5 Tables

Literature Review

Procrastination

Procrastination is the decision to put off work and tasks to be completed later without any need of doing so. It is a widespread behaviour among most people, but is especially common among students where approximately 70 to 90 percent of undergraduate students are found to procrastinate (Whitbourne 2012). This common behaviour is far from harmless as it impacts the academic performance of students. A study by Kim and Seo (2015) found that there is a significant relationship between procrastination and academic performance. More research has been found that also affirms this relationship. A study conducted on undergraduate dental students found that only 0.5 percent of students who scored high on academic performance were ranked high in levels of procrastination. This is in contrast to 21.5 percent of students who performed below average academically scored high on procrastination as well (Lakshminarayan, Potdar & Redd, 2013). These numbers and statistics show that procrastination has a significant statistical correlation with below average academic performance by students.

Two Types of Procrastination

Two different types of procrastination were proposed by Chu and Choi in 2005: Active procrastination and passive procrastination. Passive procrastination is the common type of procrastination wherein a person is unintentionally putting off work for longer than is responsible. This usually happens due to being stressed, distracted, anxious about starting, indecision, or other similar reasons. Active procrastination is the variant of procrastination wherein a person is deliberately giving themselves less time. This is done because a person

prefers to work under time pressure, and therefore decides actively to wait to work until there is little time left.

Active procrastination has several characteristics that differ from passive procrastination despite some similar behaviours. Active procrastinators often procrastinate as much as passive procrastinators. However, the results and reasoning behind such behaviour is very different (Chu and Choi, 2005). Active procrastinators indeed have a time management ability and a performance that is closer to a non-procrastinator than a passive procrastinator. A probable reason for this similarity between two very different behaviours lies in the self-discipline that is required. Both an active procrastinator and a non-procrastinator have control of their actions. Active procrastinators have control in carefully deciding to start in time and reap the benefits of procrastination while not delaying too far. In comparison to this, non-procrastinators make sure to start early and keep tasks under control. In clear contrast to these two is passive procrastination, generally caused by a lack of self-control and self-discipline. This is a very major difference between these two types of procrastination because it essentially necessitates a distinction to be made between them due to the radically different causes and results. Procrastinating purposefully even has the distinct possibility of enhancing the academic performance of a student. Due to the students who procrastinate actively making a conscious decision and are intending to finish on time, there is planning and strategy involved in this type of procrastination. This is the opposite of the accepted consequences of passive procrastination and the illogical, short-sighted nature of passive procrastination. Therefore, the distinction between these two types of procrastination is made even more important.

The Big Five

The Big Five personality traits structure is the most commonly used and accepted personality model in psychology. The Big Five personality traits model consists of 5 different traits, wherein a person is placed on a scale in between two extremes of each trait. The traits are openness, conscientiousness, extroversion, agreeableness, and emotional stability (also known as neuroticism). Together these five factors are able to define the broad personality of a person. The Big Five personality traits model is criticised for each trait being too broad and therefore too generalizing in its results. Due to this broadness, the Big Five Personality Test is easy and fast to administer and sufficiently specific as to being useful for large scale surveys and quantitative data. However, this comes at a cost of being less useful for qualitative data. For this reason, it is very useful for finding correlations between specific behaviours and the personality of subjects (Lim 2020). Two studies have been used for connecting the Big Five to procrastination in order to be able to compare their results such that any correlation is more probably correct. Definitions for the big five have been derived from Allport, Cattell, and Eysenck (n.d.).

Openness

Openness is also known as openness to experience, intellect, or imagination and refers to the willingness to participate in new experiences. People with lower scores of openness are generally more rigid and continuous in their daily lives and activities, preferring a lack of change over new ideas and experiences. On the contrary, people with a high openness score are curious, want to try new things, and are often more creative.

Openness and procrastination. Openness has been shown to have a weak, negative association with procrastination. This means that persons with a higher level of openness will

procrastinate slightly less. In a study, openness was found to have an effect of -0.14 on procrastination (Golub, Petričević, et al, 2019). However, there are different results regarding its significance as another study found a weaker, but still similar correlation between procrastination and openness of -0.122 (Alzangana, 2017). With the small correlation both studies came to the conclusion that openness has a low impact on procrastination. A reason for this weak correlation may be the behavioral tendency of persons with a high openness score to appreciate new information and experiences and therefore wishing to participate in them and not delay doing the task. Due to the low correlation, openness is not considered a factor that may have interesting results in another study, and is therefore not a part of the study in this paper.

Conscientiousness

Conscientiousness can be understood as a score of self-discipline. Those with a lower score tend to have less control, be disorganized in their work, and be more impulsive. Persons with a higher conscientiousness score tend to be organized, focused, and in control.

Conscientiousness and procrastination. Conscientiousness has been shown to have a negative correlation with procrastination. In a 2019 study, conscientiousness was found to have a correlation of -0.46 on procrastination (Golub, Petričević, et al, 2019). Interestingly, another study found the exact same negative correlation between procrastination and conscientiousness of -0.46 (Alzangana, 2017). The agreement of several sources and the moderately high level of correlation between conscientiousness and procrastination points to the fact that conscientiousness has a large impact on procrastination. This large impact of conscientiousness makes sense since the personality trait is a measurement of the self-discipline of persons, and procrastination is often due to a lack of such a quality. Conscientiousness may also have a

different impact on active procrastination compared to passive. Due to the large impact it has and the potential difference between passive and active procrastination, conscientiousness will be studied further in the survey in this paper.

Extroversion

Extroversion is a drive for social activity. Persons who score high are generally social and adventurous; in comparison, persons who score lower are less social, more reserved, and generally spend less time in social settings.

Extroversion and procrastination. Extroversion has been shown to have a negative correlation with procrastination. In a study extroversion was found to have a -0.08 correlation with procrastination (Golub, Petričević, et al, 2019). However, a separate study found a higher correlation between procrastination and extroversion at -0.24 (Alzangana, 2017). These two studies reached quite different results about the correlation of extroversion and procrastination. Nevertheless, these results both indicate a weak correlation between extraversion and procrastination. A potential explanation for this weak negative correlation may be due to a link between procrastination and inactivity. Lower levels of extroversion have been shown to correlate with inactivity; this would cause extroversion to have an impact on procrastination, but a relatively minor one (Schouwenburg, Lay. 1995). Due to the relatively minor impact and limits in resources for this study, extroversion will not be further explored.

Agreeableness.

Agreeableness is friendliness and optimism. Persons who score higher are more likely to avoid conflict, be helpful, and be trustful of others. In comparison, people who score lower have a tendency to be uncooperative, rude, and critical of others.

Agreeableness and procrastination. Agreeableness has been shown to have a weak negative correlation with procrastination. In a study a correlation of -0.14 between agreeableness and procrastination was found (Golub, Petričević, et al, 2019). With very similar results another study found a correlation of -0.115 (Alzangana, 2017). The similar results firmly establishes agreeableness as a trait with a weak correlation with procrastination. This weak correlation may be due to the behaviour of persons who are high in agreeableness to care for others more and want to support them. Procrastination is problematic for all parties involved, especially in group projects. They may also want to set a good example for others, which may also drive them to a slightly lower level of procrastination. Agreeableness has been linked to lower levels of risk taking, due to procrastination inherently being generally illogical and risky this would decrease the likelihood of persons with a high agreeableness to procrastinate (Watson, 2001). Agreeableness shows a low impact on procrastination and is deemed largely unimportant and will therefore not be further explored in this study.

Emotional Stability

Emotional stability is the opposite of neuroticism: it varies between studies which term is used; however, they are the same measurement, simply reversed. Persons who score lower in emotional stability have a higher tendency to experience negative emotions. They tend to be more anxious, unhappy and impulsive. Persons who score higher in emotional stability tend to be calm and in control of their own emotions.

Emotional Stability and Procrastination. Emotional stability has been found to have a weak negative correlation to procrastination. In a 2019 study on academic procrastination and personality a correlation of -0.11 was found between emotional stability and procrastination

(Golub, Petričević, et al, 2019). Emotional stability is the same personality trait as neuroticism, but reversed. Therefore this means there is a positive correlation between neuroticism and procrastination as the negative correlation reverses into a positive correlation. In a separate study a weak positive correlation of 0.175 was found between neuroticism and procrastination (Alzangana, 2017). A potential reason for this correlation was proposed by Schouwenburg and Lay in their study “Trait procrastination and the Big-five factors of personality” published in 1995. The proposed explanation is that the tendency of persons with a high neuroticism score to be impulsive and tentative. Procrastination can be related to impulsiveness due to distractions, and making short term choices that are negative in the long term. This has the potential for interesting data regarding active and passive procrastination due to the difference in why such behaviour is performed. Active procrastination is far more aware and conscious in the usage of time in comparison to passive procrastination; therefore, it is feasible that traits such as impulsiveness will lower active procrastination. Despite the low correlation, the unclear impact of emotional stability has potential for interesting interactions with procrastination when passive and active procrastination are accounted for; therefore, emotional stability will be further explored in this study.

Hypotheses

Conscientiousness is expected to have a strong negative correlation with procrastination in general, but a positive correlation with active procrastination due to this type of procrastination requiring more self control.

Emotional stability is expected to have a weak negative correlation with procrastination, and a stronger correlation with active procrastinators due to needing more self control for successful active procrastination.

Methodology

In order to test the correlations between conscientiousness, emotional stability, passive procrastination, and active procrastination, a survey was carried out via Google Forms. It was sent out to two different groups: first, it was delivered by email to the student body at Makua Lani Christian Academy; second, it was shared on the online workplace site of the YWAM University Of The Nations. The Makua Lani christian academy subjects will be referred to as group one and the YWAM University Of The Nations subjects will be referred to as group two. The survey consisted of 31 questions, split into three parts and one subsection. These parts were, Big Five score on emotional stability, Big Five score on conscientiousness, score of procrastination, and a subsection of procrastination to determine if a participant is an active or a passive procrastinator. The question pool for conscientiousness and emotional stability was derived from the "Possible Questionnaire Format for Administering the 50-Item Set of IPIP Big-Five Factor Markers" International Personality Item Pool. This pool includes 50 questions for all five personality factors of the Big Five; however, this study only focuses on the factors of conscientiousness and emotional stability. Therefore the 20 questions related to these two factors were isolated from the rest of the question pool and used in the questionnaire for this survey. In addition to this, 11 questions were created specifically for this survey to measure procrastination and its subsections. These questions were used to determine the qualities via the *Converting IPIP*

Item Responses to Scale Scores Guide. According to this guide, each question is assigned as either a negative or positive in relation to the quality they are attempting to determine. Each participant ranks the question on a scale from one to five, where one strongly disagrees and five strongly agree. An answer of one is worth one point, two is worth two points, and so on. In a negative question, this is reversed such that an answer of one is worth five points, an answer of two is worth four points, and so on. The score for conscientiousness and emotional stability, when tallied up, can reach from a minimum score of ten to a maximum score of fifty. There are ten questions for determining procrastination; these questions are calculated to give a final score between ten and fifty. This final score is collected to give a score to the amount of each specific trait in each participant. When this has been done these scores may be compared in order to find correlations between them. In order to find if a participant is an active or passive procrastinator, the previously administered questions were analyzed to find tendencies of either type of procrastination. Out of all 31 questions, 5 were selected to find the people who are active procrastinators. The five questions are: I shirk my duties, I always start on time, I am always prepared, I follow a schedule, and I prefer to work under time pressure. These questions were added or subtracted together depending on if the question is positive or not, for a maximum score of 19 or a minimum of -1. Participants with a score of 14 or higher were deemed to be an active procrastinator.

Limitations

This study has a few distinct limitations which may have impacted the findings of the study. The studies were performed online and anonymous; therefore, subjects could have potentially

participated in the survey more than once. To avoid duplicates as best as possible, any submissions that are identical will have one of them removed from the submission pool. Both of the surveys were administered at Christian institutions, which may have an impact on the findings. The survey questions for procrastination as well active and passive procrastination were all created for this survey and have therefore not been previously tested. Furthermore, these studies were voluntary and online; therefore, there is a possibility that the demographic that selected to participate is not representative of the greater population.

Results

All Data

First the results of both groups were viewed together and combined into a single group and a correlation between the different traits was calculated from the data from the survey. In total there were 72 participants in the entire study.

Table 1

<i>All Data</i>	C & ES	C & P	ES & P
R	0.1213009214	-0.420149268	-0.3494133729
P-Value	0.310103	P<0.001	0.002659
DF	70	70	70

Note. R = Pearson correlation coefficient, DF = degrees of freedom, C = conscientiousness, ES = emotional stability, P = procrastination.

The results from the survey shows a very weak correlation coefficient between conscientiousness and emotional stability at 0.121 as well as a high P-Value of 0.310. This indicates that there is little to no connection between the two variables and that the small correlation may be inaccurate or due to chance. The correlation coefficient between conscientiousness and procrastination is negative and large at -0.420, as well as very significant with a P-value below 0.001 indicating that it is very unlikely that the connection arose due to chance. The correlation coefficient between emotional stability and procrastination is negative and large -0.349, with a significant P-value of 0.0026 indicating that there is little chance the results arose through chance.

Group One

The results from group one were isolated in order to see if any significant differences between the groups would occur. Group one contains 26 individual participants.

Table 2

<i>Group One</i>	C & ES	C & P	ES & P
R	0.2799066854	-0.6062935764	-0.365039075
P-Value	0.166087	0.001034	0.066736
DF	24	24	24

Note. R = Pearson correlation coefficient, DF = degrees of freedom, C = conscientiousness, ES = emotional stability, P = procrastination.

The correlation coefficient between conscientiousness and emotional stability is positive and large at 0.279, however a high P-value of 0.166 suggests that this result may be in part due to

chance and not an actual connection. The correlation coefficient between conscientiousness and procrastination was found to be strong and negative at -0.606, additionally the P-value is very small at 0.001 suggesting a strong significance: this indicates that the correlation is not due to chance. The correlation coefficient between emotional stability and procrastination is negatively moderately strong at -0.365, with a non-significant P-value of 0.066 there is a possibility that the connection is in part due to chance and not an actual connection.

Group Two

The results from group two were isolated in order to see if there were any significant differences between groups. Group two contains 46 individual participants.

Table 3

<i>Group Two</i>	C & ES	C & P	ES & P
R	0.127935251	-0.2711077768	-0.2747539333
P-Value	0.411359	0.075187	0.071891
DF	44	44	44

Note. R = Pearson correlation coefficient, DF = degrees of freedom, C = conscientiousness, ES = emotional stability, P = procrastination.

The correlation coefficient between conscientiousness and emotional stability is very low at 0.127, the P-value is very high at 0.411 indicating a very low significance and a very likely possibility that the correlation is impacted by chance. The correlation coefficient between conscientiousness and procrastination is relatively high at -0.271, with a non-significant P-value

of 0.075 there is a low possibility that the correlation is influenced by chance. The correlation coefficient between emotional stability and procrastination is relatively high at -0.274, with a non-significant P-value of 0.071 there is a low possibility the correlation is influenced by chance.

Active Procrastinators

Active procrastinators were identified and isolated such that the correlations can be analyzed via this specific facet of procrastination. In total there are 19 persons from the study who were identified as active procrastinators.

Table 4

<i>Active</i>	<i>C & ES</i>	<i>C & P</i>	<i>ES & P</i>
R	0.1543184358	-0.09530211013	-0.4328835884
P-Value	0.528228	0.69886	0.64739
DF	17	17	17

Note. R = Pearson correlation coefficient, DF = degrees of freedom, C = conscientiousness, ES = emotional stability, P = procrastination.

The correlation coefficient between conscientiousness and emotional stability in active procrastinators is low at 0.154, the P-value of this correlation is extremely high at 0.528, indicating that it is very likely that this correlation may be inaccurate and due to coincidences. The correlation coefficient between conscientiousness and procrastination is very low at -0.095, the P-value of this correlation is very high at 0.698. This indicates that the correlation between these two may be inaccurate. The correlation coefficient between emotional stability and

procrastination is large at -0.432; the P-value of this correlation is very high at 0.647, an indication that the correlation may be inaccurate.

Passive Procrastinators

Passive procrastinators were identified and isolated such that the correlations with this specific facet of procrastination can be studied specifically. In total there are 54 persons from the study who were identified as passive procrastinators.

Table 5

<i>Passive</i>	C & ES	C & P	ES & P
R	0.1171396736	-0.4349523698	-0.3007433167
P-Value	0.399073	0.001171	0.027525
DF	52	52	52

Note. R = Pearson correlation coefficient, DF = degrees of freedom, C = conscientiousness, ES = emotional stability, P = procrastination.

The correlation coefficient between conscientiousness and emotional stability in passive procrastinators is weak at 0.117, with a non-significant P-value indicating that the result is influenced by chance. The correlation coefficient between conscientiousness and procrastination is strongly negative at -0.434, with a significant P-value of 0.001 indicating that there is little to no chance involved in the correlation. The correlation coefficient between emotional stability and procrastination is moderately negative at -0.300, with a P-value of 0.027 is significant and chance plays a very small role in the correlation if any.

Discussion

This study has presented the data for the correlation coefficient between emotional stability, conscientiousness, and procrastination in five different groups: All data points, group 1, group 2, active procrastination, and passive procrastination.

Correlation Between Conscientiousness and Emotional Stability

Across all five groups the correlation coefficient between conscientiousness and neuroticism has been found to be quite small. All the groups except for group one have a correlation below or equal to 0.154. Group one has a large correlation of 0.279; however, it also has a relatively high P-value of 0.166 showing that there is a good chance the correlation is only due to coincidences. This is supported by all the other groups having a significantly lower correlation as well very low P-values. Therefore the conclusion that conscientiousness and emotional stability are two separate and unrelated factors is the most logical.

Correlation Between Conscientiousness and Procrastination

The results from the correlation coefficient between conscientiousness with all the data points is very close to what was expected to occur according to previous studies. Two other studies placed the correlation between conscientiousness and procrastination as -0.46 (Alzangana, 2017; Golub, Petričević, et al, 2019). The results of the current study placed conscientiousness and procrastination at a correlation coefficient of -0.42, Table 1. This is very close to the other results and therefore supports the first part of the hypothesis that there will be a strong negative correlation between conscientiousness and procrastination. This correlation is very logical since conscientiousness is a measure of self-discipline and procrastination is often caused by a lack of self-discipline.

However, an interesting difference occurs when group one is looked at individually: the correlation coefficient is significantly higher at -0.606 table 2 compared to the previous -0.42 table 1 or -0.46 (Alzangana, 2017; Golub, Petričević, et al, 2019). The significant difference between these two results may be explained by age. Group one consists of high school students, in contrast to the other results where most of the participants are older. In his 2017 study Alzanka found a negative correlation of -0.131 between age and procrastination. Interestingly, in the older group two the correlation between conscientiousness and procrastination is -0.271 lower than the other studies. This points to conscientiousness becoming less important as life experience is gathered. This would explain the major differences in correlation between these factors. This is a fascinating difference that requires further research.

When the active procrastinators are isolated the correlation with conscientiousness decreases into -0.095 table 4. This is significantly lower than any other correlations found in other studies and is partially in line with the hypothesis, but less severe than expected. The hypothesis is that conscientiousness would not decrease active procrastination, but increase it. However, table 4 shows that conscientiousness still has a negative correlation with procrastination, but a significantly smaller one. This partially supports the hypothesis because the negative correlation with conscientiousness and active procrastination is far weaker, but not positive as was hypothesized.

When passive procrastination is isolated the result remains firmly within the average with a correlation of -0.434.

Correlation Between Emotional Stability and Procrastination

The correlation between emotional stability and procrastination is higher than what was expected from previous studies. In all of the data groups, a negative correlation with procrastination was found in agreement with the hypothesis. However, the correlation is significantly higher than what has been found in previous studies. All the data points from this survey as shown in table 1 has a correlation of -0.349. This correlation is approximately twice as strong and there is no adequate explanation to be found. Despite this anomaly, the correlation is in line with the expected hypothesis of a large negative correlation between the two.

The difference between group one and group two is small. Group one, the younger one, has a correlation of -0.365. Group two, the older one, has a correlation of -0.274. There is still a significant difference of approximately -0.09, but it is smaller than the differences between the ages in conscientiousness. This falls in line with the theory regarding the impact of age, wherein life experience makes the Big Five less impactful on procrastination.

The hypothesis also theorized that if the active procrastinators are studied alone, the correlation would be higher since more self-control is necessary and emotional stability is negatively related to behaviours such as impulsiveness. This hypothesis is supported by the active procrastinator group. A correlation coefficient between emotional stability and procrastination with only active procrastinators is -0.432; this is higher than the average correlation of -0.349. Therefore a detectable difference is shown between these two types of procrastination.

Conclusion

This study proposed that conscientiousness will have a strong negative correlation with procrastination, but a positive correlation with active procrastination. The survey found that conscientiousness does indeed have a strong negative correlation with procrastination of -0.42 . Such a finding fits in with other research that has been conducted on the topic. However, it was also found that active procrastination did not have a positive correlation with conscientiousness, but the correlation was significantly less negative than one with normal procrastination. The correlation between active procrastination and conscientiousness is -0.095 . Such a finding partially supports the hypothesis since it was correct in conscientiousness becoming more positive, but overestimated how much more positive it would become.

A second hypothesis was also constructed in regards to emotional stability. This hypothesis asserts that emotional stability will have a weak negative correlation with procrastination, and a stronger one with active procrastination. The study found that emotional stability had a strong correlation with procrastination of -0.349 , such a correlation is stronger than what was asserted by the hypothesis, as well as stronger than correlations from other studies. In regards to active procrastination, the study found that the correlation was stronger at -0.432 . This hypothesis was incorrect by underestimating the correlation between emotional stability and procrastination, but it was correct in that there is a larger correlation between conscientiousness and active procrastination compared to standard procrastination.

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All Tables

All	C & ES	C & P	ES & P		group 1	C & ES	C & P	ES & P
Correlation	0.147935251	-0.420149268	-0.3494133729		R	0.2799066854	-0.6062935764	-0.365039075
P-Value	0.215034	P<0.001	0.002659		P-Value	0.166087	0.001034	0.066736
					DF	24	24	24
group 2	C & ES	C & P	ES & P		Active	C & ES	C & P	ES & P
R	0.127935251	-0.2711077768	-0.2747539333		R	0.1543184358	-0.09530211013	-0.4328835884
P-Value	0.411359	0.075187	0.071891		P-Value	0.528228	0.69886	0.64739
DF	44	44	44		DF	17	17	17
Passive	C & ES	C & P	ES & P					
R	0.1171396736	-0.4349523698	-0.3007433167					
P-Value	0.399073	0.001171	0.027525					
DF	52	52	52					

All Active Procrastinators

	Conscientiousness	Emotional stability	Procrastination	Active procrastination	C and ES correlation	C and P correlation	ES and P correlation
1	42	36	39	16	0.1543184358	-0.09530211013	-0.4328835884
2	41	33	24	14			
3	43	24	26	15			
4	40	33	28	14			
5	35	45	25	14			
6	43	41	24	15			
7	41	37	17	16			
8	36	34	24	16			
9	42	35	23	14			
10	45	31	34	14			
11	43	37	22	15			
12	40	42	18	16			
13	39	33	24	14			
14	49	31	26	18			
15	40	26	32	15			
16	46	39	27	14			
17	50	44	18	15			
18	35	26	31	14			
19	40	27	23	15			
20							

Using Canva for Teaching Online Course in Graphic Design in Saudi Arabia

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Abstract

Technology usage is increasing in many higher education classrooms around the world and also changes the teaching methods during the COVID-19 Pandemic. Technological tools with teaching will help instructors to make their online courses more successful. The use of these technology tools can also create increased levels of student engagement and overall course retention. Many courses have fallen behind in their integration of technology into classroom practices. Thus, *Canva* is a powerful technology tool and a platform for graphic designing that is used to create graphics for social media posting, posters, presentations, documents, and other graphic or pictorial content. The research explores the author's experience of teaching Graphic Design as an online course by using *Canva* within the field of Art and Design. The paper uses the autoethnography approach as the method of analysis. The results share the instructor's experiences using *Canva* in her online courses in Saudi Arabia and recommendations for instructors who teach Online courses in Art and Design.

Keywords: Canva, teaching, online course, graphic design, art and design, Saudi Arabia

Using Canva for teaching Graphic Design Online Course in Saudi Arabia

The use of technology is becoming vital and inevitable as the world is progressing. Over the past few years, the field of education is also experiencing major changes with the latest technology being incorporated into it to make the process of learning easier and more interesting. Nonetheless, the emergence of the coronavirus pandemic has made the importance of technology evident to everyone. Most of the activities including business, marketing, buying and selling, job-related work, and education have now been shifted to an online environment. In past too, many courses were offered online to accommodate for the students that can not physically come to a certain place to get benefit from a specific course. This trend of online educational courses that started some few years ago has now reached its peak. There are many subjects that can be effectively taught online while some can only be taught with full efficacy in an on-campus setup. Art and design are some of those subjects that become difficult to teach for educators when the environment for education is used is through technology and the internet (Fleischmann, 2020). This is because arts is all about techniques and skills that are better shown and presented to students in a one-to-one setup. Previously, the educators used the hands-on studio-based approach for the teaching purposes of courses that were based on arts. Moreover, this becomes next to impossible to continue the same learning approach in the online environment. However, given the advantages of online learning like stopping the spread of coronavirus, expanding the coverage of the courses, ethnographic exploration, and enhancing global collaborative experiences, scholars are now much interested in finding out the techniques, methods, and approaches that can assist them in teaching these subjects the same way they used to teach in the on-campus educational process (Alsuwaida, 2020).

Nonetheless, technology has not only changed the way educators now teach the students of the practices that comprise the process of learning a certain subject like arts and designs but has changed the way the tasks in the courses of arts and designs are now carried out. New and progressive concepts are also being continuously introduced in the field of arts as the artist only needs a medium to express their feelings, arts, thoughts, etc. technology is changing the way the art pieces are created and shared, replacing the conventional, orthodox audiences with more enlightened and modern audiences, and taking arts beyond the boundaries through the social connections provided by the technology (ARTDEX, 2020). Technology has also opened up so many prospects for artists and has introduced a great number of practices that artists are able to access through technological platforms. For instance, artists can now use an iPad to paint as well as they can do with the traditional paint and paintbrush, canvas setup (Boitel, 2019).

Graphic designing is a form of art commonly used in academics as well as in professional setups to project certain interactions, information, and communications in form of visual arts to convey the message to intended audiences in a more appealing way. It is a skill where artists, experts make pictorial, visual, or graphic content to carry out communications or convey some message. With the employment of visual hierarchy techniques, creators use pictures and typography to meet the particular needs of users while focusing to display features logically in collaborative designs the main purpose of graphic designing along with message communication is to optimize the experience of the end-user (The Interaction Design Foundation, 2018). Computer graphics is one of the most common and popular examples of technology getting integrated into the arts (The Uni Tutor, 2020).

Teaching graphic designing is not a simple task as it not only requires to build basics of the students but also to make them capable of finding out the creative ways to present any

information given to them this means that the teaching of graphic designs combines the educating about basics and awakening, and exploring the creativity of students (Hofmann, 2020).

The technology has changed the ways that graphic designing is now done and introduced the latest software, applications that can be used to make the experience much easier however all these applications also require ample learning and sustained practice. Studies have shown that the teaching methods have a profound effect on the process of learning art and design course, especially graphic designing (Alhajri, 2016). More and more educators are now getting their hands-on on the latest technology to make online teaching and learning interesting, effective, and closer to reality. One such latest tool is canva.

Canva is a platform for graphic designing that is used to create graphics for social media posting, posters, presentations, documents, and other graphic or pictorial content. This free graphic design platform includes numerous templates for users to make different content like logos, business cards, posters, flyers, presentations, etc. Not only is this platform free to use but also offers a wide range of features that have easy access to make the use easy, advantageous, and pleasurable for the users. The app provides paid subscriptions too for advanced features and additional functionality (Canva, n.d.). professional templates available in huge number, availability of the canva pro to manage businesses, and scale up the graphical content, and the option to work individually or in a team to ensure collaboration, canva has many features that make it a really helpful tool in the latest technology driven world for any field. One most important aspects of this platform are it does not require much practice and background knowledge and is very easy to use with its drag and drop feature. This is the reason that many people are now using can for all sorts of purposes be it educational, professional, social media-based content sharing, or personal (Demarest, 2020).

Canva with its easy-to-access and convenient-to-use feature is a very powerful tool that can change the learning process and transform how education is imparted in online as well as in-class educational processes (Edwards, 2021). This platform can be used by instructors or educators to make lecture slides, assign projects, generate posters, provide guidance to students, and can also be put to use by the students to complete their assigned tasks. Amalgamation with Google Classroom in an online session can further enhance productivity within the online classroom setup (Edwards, 2021). To use canva to teach the graphics designing course to students, the first thing that shall be done by the instructor is to carry out a basic training session on canva that will introduce the platform to the teachers and share with them different features of the app that can be used for various purposes as well as those specific to the graphic designing. Since, the platform does not need much expertise to become a pro at it henceforth this basic training sessions will not need much time (Edwards, 2021).

Once done with the basic training on how to access and use canva, the next task for instructors will be to indulge in the use of canva for graphics designing. For the purpose of teaching the graphics designing course using canva, the instructors can not only make their presentations, projects classroom materials using canva but also get students to use the graphical designing tools on canva to learn various graphic designing approaches and practice them in the platform. With the help of available templates on canva, the educator can ask students to make their own graphical designs after learning each technique of graphic designing at the end of each online session. This will put all the knowledge obtained by the students to practice and since canva is easy to use and free to access therefore this classroom-based activity will not take too much time.

The main scheme that an instructor can follow to teach graphical designing using canva is to teach the basics of graphical designing using presentations of materials prepared in canva that can also be accessed by students in the collaborative access feature of the platform. Apart from personal use, the teacher should also share tips to students to get experts in graphical design using the following step-by-step guide.

After completing a basic training session on canva, the educator must continue with the teaching of the specific course which is graphic designing in this case. In the first step, the students shall be taught to create a basic design from the very beginning or scratch using the basic graphic desingning techniques in canva. This may include writing some basic quotes in fancy font and colors, etc. This will not only polish their information and skills learned in the class of basics of canva but will also get them started with the graphics designing. Once, every student gets done with creating a simple design on canva the next step should be to ask them to polish their design. In this step, the instructor must carefully assess the designs made by each student and give feedback to make the designs better and adherent to the graphical designing standards while also teching some advanced features of graphic designing. This means that throughout the process the theory and the practice of the graphic design shall go in parallel to each other (Marshall, 2021).

After improving the design content, the students shall be taught to check and adjust the sizes of the visuals they have made. Since the dimensions play an important role in graphic designing for instance a poster shall meet certain requirements of sies whereas a social media post shall be made in a specific size to avoid cutting off the edges or some pictorial content while posting it on social media. Also, the content added within the design shall be adjusted so that nothing looks out of place or no one item takes away the attention too much or gets neglected

due to faulty dimensioning. After setting the appropriate dimensions, the teacher must teach the various methods to adjust backgrounds in any visual and this shall also be applied to the design made by each student using canva. In this step apart from setting a background color depending upon the need of design or the specification that the design has to meet upon completing like communicating a certain message, the designer or student shall also be instructed to change and add a background image to the design. Once done the setting of the picture, background, and dimensions, the next step shall comprise the teaching of the advanced features of the graphic designing using canva. These may include overlaying or layering the images, adding details to the content, lining and shaping the content, adding texture to the design, etc (Marshall, 2021).

At the end of the course, the instructor can also use canva to assign a course project to every student that must meet specific design requirements and shall be performed and designed using the canva platform. This will help the teacher assess how much the students have learned in terms of creativity, graphics designing, and the use of canva for making graphic designs.

Conclusively, canva can not only be used by educators to improve the teaching process and make effective course materials in an online educational setup but also educate the students about the graphic designing techniques along with allowing them to put their knowledge to practice using the graphic designing features of canva.

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Measurement of Brain Waves and Heart Rate to Understand the Learners' Learning Conditions during Remote Programming Learning

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Abstract

In the on-demand type of remote lesson, it is not easy to understand the learners' learning condition rather than the real-time type. Many studies have been conducted in this type of learning to grasp the learner's learning condition by measuring the brain wave with an electroencephalograph (EEG).

The relationship between intellectual work and brain waves has been studied under the assumption that the β wave is strongly related to a person's mental state. For example, Giannitrapani investigated the relationship between intellectual work and brain waves by measuring the brain waves of a person taking an intelligence test [1]. The low-frequency component of the β wave was found to be dominant during a reading and comprehension test, a mathematics test, and a diagram test. Other researchers have discovered that the power spectra of the α and β waves, the ratio of the α and β waves in relationship to all brain waves, and the simple ratio of the α and β waves are effective in determining a person's state of mind [2][3]. Furthermore, it was shown that the activity of a person's brain could be determined by measuring α and β waves and estimating the value of β/α [4]. As the processing load increases with the task difficulty, so do the value of β/α .

However, we cannot assume that learners will be equipped with EEG in actual on-demand remote learning. Therefore, a biometric information device that replaces the EEG will be necessary for the future.

In this study, we focused on heart rate as a biological indicator instead of brain waves. When

solving programming problems of different difficulty levels, we used two heart rate monitors and a simple EEG to measure the heart rate and brain waves. We used the “MindWave Mobile 2” from NeuroSky, Inc. as an EEG. In addition, we used two heart rate monitors: “my beat” from Union Tool Co. and “vivosmart j HR +” from Garmin Ltd.; these types of equipment were used to monitor the brain waves and the pulse rates of participants as they attempted to solve six Java language exercises of varying difficulty levels. For example, a simple problem is creating a program that displays the input character string for n lines; whereas, reading multiple integers and outputting the second smallest value among them is a challenging program. The participants in this experiment were 14 third and fourth year students of the Shonan Institute of Technology (who signed the agreement on research ethics). All participants had learned Java language by taking several classes since their first year at the university, and were accustomed to the basics of the language. However, some participants were not good at the Java language.

We used two types of heart rate monitors, and the measurement of both showed similar trends. Therefore, it was verified that sufficient data can be acquired using a simple heart rate monitor attached to the arm. Moreover, we analyzed the measurement results during programming learning and confirmed a positive correlation between brain waves (β/α) and heart rate.

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Stop, Start, Continue: Reflections and Lessons Learned in Online Teaching & Learning to Carry Over into the “New Normal”

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Abstract

The COVID-19 pandemic has resulted in a temporary shift of higher education institutions to emergency remote instruction, including the University of Hawai‘i System. Follow along as the University of Hawai‘i Online Innovation Center (UHOIC) shares their journey of the past two years, quickly adapting their faculty professional development opportunities and support across its 10 UH campuses since the start of the pandemic. From a recap of research used to determine the direction of faculty support, to a review of its programs and offerings, UHOIC will share strategies that worked and lessons learned as we all enter the “new normal” of online teaching and learning.

Introduction

The University of Hawai‘i system is composed of three universities and seven community colleges across four islands in the state of Hawai‘i. The UH Online Innovation Center (UHOIC) team consists of instructional designers and was formed in early 2019 primarily to support a new initiative of accelerated online degree programs. Later that year, services were expanded to provide faculty/staff professional instructional design consultation and professional development opportunities across all ten campuses with increased partnerships and collaborations.

The mission of the UH Online Innovation Center (UHOIC Instructional Design Services, 2019) is to provide “impactful instructional design support to strengthen the quality of online initiatives across the UH system in service to UH faculty, staff, administrators, and students.” The team provides ID consultation services through email, office walk-ins and virtual appointments, along with professional development programs and offerings.

With the sudden shift of educational institutions towards emergency remote teaching since the COVID-19 pandemic began in Spring 2020, there was an urgent need to provide faculty, oftentimes with little to no online teaching experience, with support and guidance of best practices, resources, tools, and more. The UH Online Innovation Center (UHOIC) was able to quickly adapt to the sudden influx of faculty requests for assistance with their mandated move to online teaching. This resulted in an early implementation of longer term plans to scale up support to an increased faculty body, and the need to come up with innovative strategies to increase the quality of UH online courses with limited resourcing.

In this paper, the authors will guide readers through the UHOIC team’s journey beginning with some national online teaching and learning research leveraged during the pandemic, followed by an overview of the UHOIC’s professional development (PD) programs and initiatives, along with key strategies and solutions that worked, as evidenced by UH faculty and staff feedback.

Research Summary

Each semester, the UHOIC team conducts operational planning for the next semester. As part of the planning efforts, the team looks to both internal and external research related to online teaching and learning. During the pandemic, a number of national bodies began to research how education was being affected. The UHOIC referenced survey results to tailor offerings for faculty as data related to student and faculty experiences became available.

Emergency remote teaching is defined as “temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances” (Hodges, 2020, Emergency Remote Teaching para. 1). The use of fully online solutions support temporary instruction until the emergency has come to an end and the courses can return to their originally intended format(s). For purposes of this paper, the term *remote instruction* will be used since that is the standardized term used in the University of Hawai‘i system. The following is a summary of takeaways from our targeted research during the pandemic.

Shortly after higher education institutions transitioned to remote instruction, a national survey of 826 faculty and administrators across 641 higher education institutions was conducted to determine the state of online teaching and immediate priorities (Bay View Analytics, 2020). At that time, 90% of institutions had transitioned some to all courses online. Additionally, 97% of institutions reported using faculty without any prior online teaching experiences to teach some courses. While many faculty report using solutions like institutions’ learning management systems (LMSes) and synchronous webconference tools, and lecture recordings. Due to the quick transition to remote instruction, survey data indicated that both faculty and administrators prioritized needed more information and faculty training on how to best support students learning remotely, as well as resources to help students succeed in online courses (What Assistance Would Be Most Helpful for Online Instruction?).

In addition to faculty and administration feedback, student data was also gathered to better gauge how students were coping with remote instruction. Approximately 1000 undergraduate students in colleges or universities with at least one course change from face-to-face (in person) to remote instruction due to the COVID-19 pandemic

were surveyed on their experiences and challenges (Means, et al. 2020).

By far, the greatest challenge with online course participation for students was the motivation to do well in the course. Other problems that students considered a problem (either minor or major as opposed to not a problem) included finding quiet spaces for online coursework, school-life-work balance, unsure of where to find help, and health and wellness (p. 12). When asked to compare their experiences before and after the transition to remote learning, at least 50% of students indicated that “opportunities to collaborate with other students on course work,” “keeping you interested in the course content,” and “your feeling included as a member of the class,” was worse online (p. 8). With the shift to remote learning, students felt that asking for help from their peers or instructor felt different than with in-person learning, that they were not able to discuss topics with classmates, and that there was a loss of authentic, hands-on experiences in their online courses. The top three instructional practices students connect with overall course satisfaction included: personalized messages to individual students from the instructor based on their progress; use of real-world examples to tie to course content; and assignments that allowed students to reflect on their learning (p. 15).

In July 2020, a series of surveys and focus groups were conducted with over 4,000 faculty at over 1,500 higher education institutions across the U.S. to share their experiences on the impact of remote instruction on faculty and students, course tools and delivery, and determining priorities (Fox, Bryant, Lin, Srinivasan, 2020). It was clear that not only was the urgent transition to remote instruction difficult for faculty, students struggled even with increased challenges when forced into remote learning. Faculty respondents perceived that the greatest challenges for students included factors like school-work-life balance, reliable internet and technology access, mental health and wellness, and financial stress due to the pandemic (p. 10). In recognizing that remote instruction was not going to be the same as online teaching that incorporates best practices, faculty acknowledged that course learning outcomes and learning objectives would need to be altered in order to accommodate the transition to remote instruction. “Course changes reported included the dropping of assignments and lowering of expectations about the quality and quantity of work students could complete” (p. 20).

After reviewing the research from both student and faculty perspectives, the UHOIC team determined there were some key resources needed and PD topics to offer during the pandemic. Topics could include strategies and tips in areas such as: building pilina (relationships in Hawaiian) or connections, empathy, student engagement and interaction, and authentic learning.

Personalized instructional design support was also considered high value. “Faculty who reported that their institution had a centralized online unit, instructional design staff, or peer-to-peer collaboration resources were notably more likely to say that they came away with a more favorable view of online learning after the transition” (Fox, Bryant, Lin, Srinivasan, 2020, p. 12). Last but not least, the creation of a repository of institution-specific online teaching resources and ready-to-use templates would help to minimize the need for one-to-one instructional design support.

There are many challenges students are facing and faculty need to be ready to address them. To aid those efforts, the UHOIC began taking action and building up its repository of resources and professional development offerings.

UH Online Professional Development (UHOPD) Program Offerings

To support the increase in quality of online teaching and learning, the UH Online Professional Development (UHOPD) Program was first launched in 2018 as the UH Online 5-Week PD Program to support online accelerated (5-week) degree programs. This initiative supports the University of Hawai‘i’s desire to increase flexible opportunities for residents to earn a college degree while working and raising their families (UH News, 2019). This award-winning program (OLC Effective Practice Awards, 2020) supports faculty interested in redesigning or developing a new online course into an accelerated format or early college focus. Participants are provided instructional design support and opportunities to network and collaborate with peers. Since its launch, the program has gone through multiple iterations based on feedback from alumni and is currently organized into three phases:

- **Phase 1: Pre-requisites** (UHOPD Orientation, Preparing to Teach Online at UH Module, and the Applying the Quality Matters Rubric workshop)
- **Phase 2: UHOPD Course** (A 5-week PD course delivered through Sakai LMS and includes bi-weekly synchronous sessions)

- **Phase 3: UH Online Quality Course Design Review** (faculty submits their course developed during the UHOPD Course to be reviewed)

While the UHOPD program in its entirety requires an application and acceptance process with specific criteria and must be completed linearly (Phase 1, Phase 2, Phase 3), two of the offerings were expanded to allow any faculty or staff at UH to participate without going through the full UHOPD program. The Preparing to Teach Online at UH (PTTO) module and the UH Online Quality Course Design Review are available to all UH faculty and staff to participate in. These various pathways allow faculty choice and flexibility in determining their personalized professional development journey.

Preparing to Teach Online at UH (PTTO)

During the early formation of the UHOIC team, many faculty reached out for 1:1 assistance with basic online teaching support. One solution to increase the scalability of instructional design support and increase the online teaching and learning skills of our faculty body was to develop an asynchronous learning module that shares the basics of online teaching and learning to strengthen foundational skills.

The PTTO module provides an overview of a wide range of topics and concepts related to online learning such as engaging tools, best practices, distance learning regulations, and policies. The interactive and engaging 5-10 hour module culminates with faculty creating their own online course map. Upon final review and feedback on the module activities and course map by a UHOIC instructional designer, participants receive a certificate of completion. Each spring semester, supplemental synchronous sessions are also offered to help guide faculty through each of the module units.

UH Faculty and staff from across 9 campuses have participated or are participating in PTTO, with more than 481 registrations recorded in 2020-2021. Participants had positive experiences upon completion of the PTTO, sharing their comments in the post-survey:

Thank you so much for designing such a wonderful training program. This is one the best PD programs I have ever attended in the past 10 years of teaching in the UH system. It is very informative and yet straightforward. Appreciated it!

...this was a very well-organized effective workshop. I have benefited immensely as a result and while my course map and rubrics can use some more alignment work, I used the tools we learned about (namely Padlet and Flipgrid) in my summer session class while I was taking this workshop.

UH Online Professional Development (UHOPD) Prerequisites and Online Course

In addition to the PTTTO module as a prerequisite, those who are accepted into the UHOPD program are also required to complete the Applying the Quality Matters Rubric (APPQMR) workshop, an intensive 2 week workshop to familiarize with the most up-to-date Quality Matters Higher Education Rubric. As UHOIC revises the PD program each year, a newly added orientation prerequisite for the 2022 cohort was added in which cohort participants get to know other participants, program facilitators, and campus support, and are introduced to program expectations and PD alumni tips for success.

Once prerequisites are completed, cohort participants begin the second phase of the UHOPD Program with an intensive UHOPD course delivered in an accelerated 5-week format during the summer. Course learning objectives are as follows:

- Develop an online 5-week accelerated course in Lualima that aligns with Quality Matters Standards and is in compliance with Distance Learning rules and regulations.
- Utilize relevant technology to enhance student engagement and active learning.
- Apply best practices for online course design, development, and delivery.
- Contribute to a professional learning community with other faculty and instructional designers through opportunities for networking, collaborative conversations, and peer support.

The cohort is enrolled in the asynchronous online course delivered through University of Hawai'i System's Lualima learning management system (i.e., Sakai). In conjunction, participants are required to attend bi-weekly synchronous sessions in Zoom to allow for collaboration, networking, personalized instructional design support, and guest speakers. Prior to the pandemic, the "synchronous" aspect was delivered as a 2-day face-to-face workshop during the first week of the PD. As higher education shifted to remote instruction, the 2020 PD course workshop was converted to bi-weekly synchronous sessions that allowed program facilitators to provide synchronous

guidance as the UHOPD course progressed.

Several feedback methods are used throughout the UHOPD program, so that improvements can be implemented based on the current participants and for future program cohorts. During the 2020 and 2021 UHOPD courses that took place during the pandemic, when asked to “indicate your confidence level in teaching your accelerated online course(s) after the PD,” 84.4% of post-survey respondents (n=32) indicated either a four or five on the five-point scale (1 = Not at all confident, 5 = Highly confident).

Overall, the feedback was positive. One response is shared below from the most recent 2021 cohort:

The PD course definitely inspired me. To be 100% candid, I was not looking forward to this requirement. After going through the course and learning about the different ways to engage students, it has definitely changed my view and how I will structure my online courses in the future (I even have plans to restructure my current online course because I realize how poorly it presents the material!).

A follow up survey was sent to PD alumni (2018-2020) after they taught their fully developed and reviewed course. Results indicated that feedback and support from the instructional designers as well as the UHOIC template were the greatest strengths of the UHOPD program (n=34).

UH Online Quality Course Design Review

The UHOPD program offering culminates with the UH Online Quality Course Design review. Faculty have the opportunity to submit their fully-developed online course for review to improve their course design while receiving 1-to-1 instructional design support. While this offering is required for those who participate in the UHOPD program as the final phase after developing their online course in the UHOPD course, any faculty across the UH system is eligible to submit their online course for design review as long as they meet the required criteria for submission (UH Online Quality Course Design Review, 2020)

Upon completion of this process, instructors receive a certificate of completion that

recognizes course design meeting the quality standards, which is aligned to researched best practices in online teaching and learning and aligned to nationally recognized standards such as Quality Matters (Higher Ed Course Design Rubric, Quality Matters).

Thus far, qualitative feedback has been quite positive. Below are some excerpts from the recent 2021 UHOPD alumni:

Thank you so much for the notice and for the opportunity to work with your team again! There is always something to learn and room for improvement so I am glad to have gone through this process again.

I really appreciate the time that you each took to help me get my course ready for the 5-week format. This went far beyond converting my course to a different format, it certainly helped me improve my teaching. You have each been so patient, pointing out what I need to do but always with kindness. You are truly teachers of teachers. :)

THANK YOU SO MUCH for all your help! Things are running much smoother now and students seem to enjoy it.

As more and more faculty and administration become aware of the UHOPD program and offerings, UHOIC has increased partnerships with individual departments and/or campuses to offer these PD opportunities as criteria in order to teach online. With incremental steps towards improvement, UHOIC is supporting the efforts to further strengthen the quality of online courses across the UH system,

Other UHOIC Offerings (Webinars, Online Teaching & Learning Pathways)

Aside from the UHOPD Program offerings which have specific target audiences and completion criteria, the UHOIC also provides other general offerings open to all faculty and staff at UH.

With ten UH campuses located across multiple islands, UHOIC had a progressive goal to provide support system-wide to increased numbers of faculty/staff at a larger scale. The pandemic expedited the timeline when 100% of faculty transitioned to emergency remote instruction in March of 2020 (UH News, 2020). The adoption of new technologies to the UH system during the pandemic enabled UHOIC to quickly

scale-up and provide a variety of offerings with synchronous and asynchronous options for faculty to leverage depending on their needs.

Synchronous Offerings: UHOIC Hosted Webinars

UHOIC offers webinars to help improve the quality of online teaching and learning and inspire faculty across the UH system to increase student engagement and learning success. The webinar format, topics, and goals have continued to evolve based on participant feedback, including categories such as online teaching and learning best practices, use of technology/tools to enhance teaching, online course design strategies and tips, etc. Regardless of the webinar topics, each session includes the following:

1. Participant engagement and interactivity
2. Faculty sharing with online teaching examples
3. Research and sharing of best practices and strategies (synchronous and/or asynchronous)

Prior to the pandemic, UHOIC offered face-to-face (in-person) PD workshops hosted on campus at UH Mānoa accommodating 30-50 participants. This resulted in some participation limitations due to room size, and difficulty for faculty from other campuses and/or islands to attend. During the pandemic, the adoption of web-conferencing solutions like Zoom Meeting and Zoom Webinar (Zoom, 2022) allowed for exponentially increased participation that could be accessed by faculty and staff across all campuses. The first webinar offered in 2020, titled “Zoom for Educators: Tips for Teaching and Strategies to Protect Yourself and Your Students” had 445 registrations, which was significantly more than what could be accommodated in a face-to-face setting (UH Online Innovation Center, 2019). The transition to webinar-based offerings also increased partnerships with instructional designers, faculty, and departments across the campuses for collaborative efforts (e.g., planning team, guest presenters, co-sponsors). From March 2020 to the end of 2021, UHOIC has hosted a total of 19 webinars with over 3,300 registrations.

As the months progressed, the UHOIC offerings began to trend away from remote instruction and online teaching “basics,” and more towards improving the quality of online teaching and learning. Webinar themes began to emerge with key words such as: building empathy, student engagement, accessibility, authentic learning, technology exploration, and faculty sharing. Some of the past webinar topics were:

- Supporting Inclusive & Equitable Online Learning for Students
- Bite-Sized But Filling: Instructional Videos for Learning and Engagement
- Transitioning to the “New Normal” of Online Education: Let’s Hear From Our UH Students
- Authentic Assessment in Action
- Five Must-Haves to Motivate, Engage and Support Online Students
- Online Tools to Enhance Student Interaction and Engagement
- Building Empathy and Strengthening Online Community with Students
(Archived Past Events, 2019)

For most of the webinars, breakout room activities were integrated to provide an opportunity to dive deeper into topics and/or for small group discussion. For those who registered but were not able to attend, the webinar resources (recordings, presentation slides, Q&A doc, and other related resources) were made available on the UHOIC website the week after the webinar.

Based on the 2020-2021 aggregated post-webinar survey data (n=649), when asked if the webinar met their expectations, an average of 95.68 % of respondents selected Agree or Strongly Agree. Additionally, the large majority (97.83%) of respondents indicated that the content was relevant to their job and that they were able to use what they learned in the webinars (95.66%) based on the aggregated averages. In addition to meeting faculty expectations, qualitative feedback suggested respondents were quite pleased with the offerings. A summary of the open-ended feedback from respondents expressed that they: enjoyed seeing teaching design examples from other faculty; appreciated the opportunity to learn new tools and strategies; recognized the webinars as being well organized; and valued being able to ask their questions during the live session. Being able to access and review the webinar resources was also a benefit.

Asynchronous Offerings: Professional Development (PD) Pathways & Resources

Knowing that webinars would not be able to address all the individual faculty training needs, UHOIC created and/or curated a variety of online teaching resources and PD opportunities into an asynchronous guide to build your custom PD/resource recommendations on the Online Teaching and Learning Pathways page (UHOIC,

2021). Three different PD pathways are provided to personalize the PD offerings for faculty based on their online teaching experiences, whether they are new to online learning or new to UH, experienced online instructors, or just urgently need help/resources.

These strategically scaffolded UHOIC professional development pathways contributed to the development and teaching of high-quality online courses, providing faculty across the UH system with choices for different levels of engagement. For faculty just needing training materials, the UHOIC Resources page houses a growing number of helpful tutorials, templates, and resources.

To communicate all of these programs, events, resources, and other offerings with faculty and staff across the system, the UHOIC team launched the UHOIC newsletter in January 2019. Subscribers receive monthly event updates and quarterly newsletters with UHOIC news, updates, upcoming events, and online learning resources. Just over two years later, UHOIC now has over 2000 subscribers.

UH Instructional Design (ID) Professional Learning Community (PLC)

To further strengthen the network of instructional design support across the system, the UH ID PLC was formed to connect those with a passion for instructional design together once a month. Goals for this PLC included networking and sharing of best practices with each other, staying connected from campus to campus along with the UH system, and collaborating together on various initiatives and events that might impact instructional designers across the system (UH Online Innovation Center, 2019).

Recently in 2021, multiple instructional designers from the UH ID PLC collaborated to roll out the H5P + Lulima pilot program to a limited faculty group. H5P, a free solution used to create interactive content like interactive videos, games, presentations, etc., that is graded through the school's learning management system (UH Online Innovation Center, 2021).

In addition, the UH ID PLC Has also co-sponsored and co-facilitated webinar events for streamlined collaborative efforts to support faculty and staff. Rather than each campus instructional designer(s) having to deliver their own independent webinars, IDs from

the PLC joined forces to collaborate on planning and facilitation of high-demand topics. As a result, resourcing was streamlined with these collaborative efforts, and more faculty across all campuses were able to attend these events and interact with instructional designers from multiple campuses. The events have proven to be quite popular, with the most recent webinar collaborations, Work Smarter (Not Harder) with Google Docs webinar and Laulima (i.e. Sakai LMS) V20 Upgrade Features webinar at attracting 30-50% higher attendance synchronously.

Conclusion

While the UHOIC has continued to strive towards its mission to improve the quality of online teaching and learning across the UH system, the shift towards emergency remote instruction expedited some of the team's planned initiatives and efforts to:

- Continue providing a variety of online webinars for faculty support
- Increase partnerships and collaborations across the system
- Maintain both synchronous and asynchronous online opportunities for professional development
- Continue to iterate and improve faculty support and professional development offerings each term.
- Continue to prioritize branding and marketing to build awareness and recognition of UHOIC services and offerings
- Personalized learning pathways tailored to faculty needs or preferences

As the University of Hawai'i system transitions back to the integration of face-to-face instruction mixed in with online and hybrid teaching and learning, one key success has been the emphasis UHOIC has placed on regular iteration and improvement. As the name UH Online Innovation Center indicates, the team continuously strives to improve and integrate innovations, whether it is with the technologies, strategies, mindset, etc. A part of regular improvement is with the feedback provided from target audiences (e.g., faculty, students) and partners. All of the programs and offerings discussed in this paper are evaluated at least 2-3 times per year. For future iterations and improvements, the UHOIC intends to further support the improvement of online teaching and learning by exploring strategies to incentivize actual application of best practices in online teaching and learning, such as digital credentials.

Teaching today is quite different from what it was pre-pandemic. In a survey of 1702 higher education faculty and administrators across the United States, 88% of respondents indicated they plan to make some degree of changes to their pre-pandemic teaching once the pandemic is over (Bay View Analytics, 2020). Faculty perception of online learning has also evolved as an effective instructional method that is now considered more favorable than before the pandemic (Fox, Bryant, Lin, Srinivasan, 2020). The UHOIC team has learned many lessons from the past couple years and will continue to retain and adopt new strategies and solutions that work as we move towards the *new normal*, whatever the future brings.

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Understanding Data Privacy and Data Ethics: Building Awareness and Capacity

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Data privacy has loomed large well before the pandemic but has become an even more pressing issue since educators have been faced with unprecedented challenges in the wake of hybrid and virtual educational settings. The protection of student data privacy and confidentiality is tantamount. But in addition to data privacy, we see a broader issue; that of data ethics. Data ethics are seen as the responsible use of data writ large that also includes data privacy (Mandinach & Gummer, 2021; Mandinach & Jimerson, in press). The work we present focuses on raising awareness of the importance of both data ethics and data privacy, a responsibility that should and must be assumed by all educators who have hands on data (Mandinach & Cotto, 2021a, 2021b). The work is also based on extensive development work on the construction of materials that can help educators learn about data privacy and data ethics through the use of scenarios that reflect authentic situations that educators face around topics such as the use of data from social media, through technology, in virtual settings, and more (Mandinach et al., 2021).

The presented work first focuses on why data privacy and data ethics are important in educational practice. It is our feeling that it is the responsibility of all educators to understand at least the fundamentals of these topics. Further, anyone in an education system who has to deal with data should become familiar with the regulations. This means that not only teachers and administrators must understand the concepts, but also data clerks, attendance monitors, food services directors, transportation staff, and more all have to be responsible data users. They must understand how to protect data. For example, food services staff have access to information

about students who qualify for free and reduced lunch. Transportation staff have knowledge of students' domiciles. All such data must be protected. It is not just about test scores, student indices, and classroom data. It is a much broader issue. So awareness building is a first step.

A second step is to build human capacity; that is, educators must understand data privacy and data ethics, a part of a larger construct known as data literacy (Mandinach & Gummer, 2016). The Future for Privacy Forum and WestEd began a development process in 2018 to understand the need and then construct materials that would help build the needed capacity for educators, first in educator preparation programs and then in technical assistance and professional development. An initial step was to understand the landscape of state codes of ethics and state standards. Mandinach and Cotto (2021b) examined state standards for educators and discovered little if any coverage of data ethics and data privacy in those documents. A further examination of codes of ethics also yielded little attention, instead discussing professionalism. The importance of these documents lies in that educator preparation programs must address topics in these regulations so the omission of such concepts is problematic.

Thus, we began an intensive development effort to create materials that could be used in pre-service and in-service settings to help educators acquire a fundamental understanding of data privacy and data ethics. The development team included experts on data privacy, data literacy, educator preparation experts, and practicing educators. It was informed by input from several educator preparation programs that volunteered to beta-test materials and provide formative feedback.

The team developed nearly 100 scenarios based on authentic issues that educators confront. The scenarios fell into several categories: classroom practices, communication, professional duties, social media, student data, technology, and virtual learning.

- **Classroom Practices:** These scenarios cover classroom policies and practices teachers implement during instruction.
- **Communication:** These scenarios cover teachers talking about student data to different people (other teachers, afterschool instructors, family members, professional researchers, students, etc.) in various settings (grade-level team meetings, public spaces, via email, etc.).
- **Professional Duties:** These scenarios cover teacher responsibilities beyond classroom instruction.
- **Social Media:** These scenarios include the use of a social media platform.
- **Student Data:** These scenarios have an explicit focus on the type of student data described in the scenario, and often discuss unique pieces of student data.
- **Technology:** These scenarios include the use of an application or other piece of technology.
- **Virtual Learning:** These scenarios take place in a virtual, remote learning environment, particularly classrooms held through video conferencing platforms. (Mandinach et al., 2021, p. 5)

Each scenario contained five sections, designed to elicit deep thinking on the part of the user, easy to integrate into existing course structures, and simple for professors, instructors, or professional development providers to use. First, the authentic situation was provided through a written scenario. Second was a set of discussion questions that could be used for classroom discussion, online chats, or other media. Third was a section entitled, Here's How We See It. This section provided guidance from regulations such as FERPA. It also provided suggestions about what the educators should do if faced with situations such as the ones presented in the scenario. The fourth section provided additional questions to help provide a more in-depth examination of the situation. The final section explored the potential harms and unintended consequences on actions that could be encountered.

Through the production of these materials, with free access on the Future for Privacy Forum website, it is our hope that educators and those who provide pre-service and in-service preparation for educators can have ready access to the materials to help build the much-needed capacity around knowledge of and ability to be responsible data users.

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DEVELOPING A SCIENCE IDENTITY: ENGAGING FUTURE SCIENTISTS IN THE PRIMARY CLASSROOMS OF TODAY

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Abstract

Young children have an innate interest in science. They behold the world around them, are natural questioners, and are not content to simply observe the world around them; they must utilize all their senses to make sense of what they perceive. Primary educators can and must capitalize on this interest by immersing students directly into hands-on applications, but also into the collaborative and communicative aspects that make up the 21st century skill set, particularly if the nation is to positively influence and support underrepresented groups to enter the STEM fields. This paper uses Social Cognitive Career Theory as a theoretical approach and seeks to offer project-based STEM activities with a focus on aerospace to excite the youngest students. It suggests that creating a science identity early on, particularly for students of color, lower socio-economic status, and female gender, is imperative in order to increase STEM career participation. Additionally, there is a focus on equipping teachers with relevant professional development and ideas to take back to primary classrooms. The authors' STEM program has an active and successful aerospace team known as the Wolfpack CubeSat Development Team. Proposals submitted as part of the first and second team iteration have been selected not once but twice by NASA for their CubeSat Launch Initiative (CSLI). One satellite, the WeissSat-1 is currently on orbit, while the second, the CapSat-1 is expected to be launched sometime in the next year. Because of the work of older students, younger students (grade K-5) are exposed to the real work of space through extensive mentoring and outreach. . While satellite teams may appear out of reach for school-aged children, there are many other ways to get students inspired now to be the STEM workers of the future. Engagement suggestions will break down into both student and teacher centered activities. Teachers should take part in learning along with their students by becoming active in professional organizations and continuing professional development (PD).

Keywords: 21st Century Skills, CubeSats, Experiential Learning, Professional Development, Project-Based Learning Science Identity, Social Cognitive Career Theory

Acronyms/Abbreviations

Aerospace, Communications, Engineering, and Science (ACES), Cube-shaped nanosatellite (CubeSat), CubeSat Launch Initiative (CSLI), Professional Development (PD), Project-Based Learning (PBL) Science, Technology, Engineering, Math (STEM), Social Cognitive Career Theory (SCCT), Wolverine/Wolfpack CubeSat Development Team (WCDDT)

1. Introduction

STEM careers, while prestigious, highly sought after, and well-paying, have largely been, and continue to be predominately undertaken by white men. Moreover, while there is a demand for employers in these fields, there is urgent concern over the fact that the current labor pool will not serve the STEM job growth needs in the near future (Mau, Chen, & Lin, 2019). The US Bureau of Labor Statistics finds there are “8.3 million science, technology, engineering, and math jobs...with the expectation that this number will exceed nine million by 2022” (Turner & Jaeng, et al, 2017). The lack of participation in and/or willingness to stick with STEM pathways generates concern that the current workforce will be limited with regards to innovation and economic

development. Even though there have been interventions to address this need and scholarship efforts put in place to close the gap, there still remains a disparity for underrepresented groups (Cadenas & Lynn, et al, 2020). In particular, people of color, those from lower socio-economic status, and women continue to struggle to form a personal science identity. These trends for underrepresented groups have been studied from several aspects to determine why students start off interested in the science and math fields but end up not following through with degrees in college, nor pursuing a career once a degree is received. In part, this retention issue is due to a lack of belonging and a lack of a science identity. Dou, Hazari, Dabney, Sonner & Sadler (2019) note that

identity can be attributed to how others see someone, i.e.: “he is a science person” as well as to how one sees self. Afriana, Permanasari, and Firiani (2016) suggest, for example, Indonesia’s low science literacy is due in large part to lack of integrated STEM curriculum. They note the revamping of their national curriculum placed a heavy focus on choosing relevant cross-curricular themes that could be implemented into all subject areas. The findings further suggest such STEM-rich curricula must pose relevant questions, define and investigate problems, analyze data, design solutions, and ultimately, communicate those findings. Similarly, in Taiwan, Liu, Lou, & Shih (2014)] report that integrating STEM, especially in project-based learning (PBL) increases girls’ STEM self-efficacy and professional commitments to future STEM careers. Using social learning theory and social cognitive career theory, the authors observed that women’s preconceived notions of gender roles or identity have an effect on student learning, particularly with regard to what they believe women in STEM fields can achieve. They conclude that women with role models in STEM fields develop enthusiasm and confidence and no longer feel relegated to traditional female stereotypes in STEM careers. Rainey, Dancy, Mikelson, et al (2018) point out that women of color are least likely to feel “at home” in the sciences, in part because curricula and pedagogy, in general, privilege white males. Their study looked at the intersection of race and gender to determine if one or the other (or both) were mitigating factors in leaving STEM fields. The conclusion was that a sense of belonging and the formation of a science identity are key factors in retention, but that the underrepresented groups report having few role models with whom to identify, and a lack of peers with whom to engage. While there needs to be a major overhaul in STEM education that addresses these issues, fostering a science identity as early as kindergarten will go a long way towards instilling not only a love of science, but also a desire to enter STEM careers.

Identity formation starts as early as infancy. The world in which children engage is often related to their identities, so stereotypes for gender can be reinforced without thought. Girls wear pink, while boys wear blue. Girls play with dolls while boys play with cars. Moreover, career options are portrayed in books or in the classroom. Even with modern advancements, girls are stereotypically cast as nurses, teachers, or mothers, while boys are shown as doctors, scientists, and astronauts. It is only recently that there has been a focus on depicting underrepresented groups in more desirable, less stereotypical, roles, yet more must be done to develop a healthy science identity in these populations. In early childhood, then, interest and development are correlated with later educational pursuits.

Hachey (2020) points out “schools are powerful spaces for identity work” and it is here, where students who might not experience or have reinforced a science

identity at home, may be engaged. Educational reform, particularly with a STEM bent, has long been a goal particularly in the United States where student performance in STEM subjects continues to lag behind that of other countries. According to the National Science Foundation as of this writing, only five countries perform below the US in science and math: Israel, Greece, Turkey, Chile, Mexico. Now, more than ever before, there is a movement to embrace the twenty-first century skills that have long been touted as an answer to America’s declining STEM performance. In fact, countries around the world are looking to this approach to affect change on their citizens of the future as too many students remain passive learners in the classroom. To mitigate the issue of student passivity, it is essential to engage students early and often in real-world, hands-on learning that goes beyond the classroom. The long-term benefits of these kinds of experiences are varied and many. According to the Association of Colleges and Universities, real world academic application in the form of experiential learning helps students both to bridge classroom study and life in the world and to transform inert knowledge into knowledge in-use. Major groups such as the National Education Association and the educational testing giant, Pearson, tout 21st century skills as being the cornerstone for future employability and overall success suggesting that critical thinking and problem-solving skills make one a more desirable team member. On their website in 2020, Pearson claims “employees with successful career paths learn to communicate effectively, engage appropriately with others, and [are] self-reliant. Effective career readiness and employability strategies are those that develop the whole learner and include personal and social capabilities; critical thinking and problem-solving skills; and academic and occupational knowledge”.

This paper will suggest these key factors for curricula development can be promoted by instilling interpersonal relationships, competence, interest, and identity from the youngest of ages. Additionally, the authors discuss why inspiring children early on in project-based STEM activities leads to citizens who take on STEM careers in the future. They offer activities to inspire the youngest students in their school settings with real, hands-on, experiential learning to increase their science identity and to create a sense of belonging in STEM fields particularly for students who are underrepresented in STEM. Further, the paper will address how educators can get more involved with relevant professional development that leads to relevant and real-world student engagement.

1.1 *Twenty-First Century Skills*

Beginning around 2002, and responding to a decline in student performance, the 21st Century Partnership was designed. The National Education Association (NEA) was a founding member and continues to have influence

in curriculum development today. They emphasize core courses, learning and teaching skills, and technology with specific focus on critical thinking; creativity; collaboration; communication (also known as the 4Cs); information, media, and technology literacy; flexibility; leadership; initiative; productivity; and social skills.

1.2 The Four Cs

Many of the activities mentioned herein emphasize the critical thinking, creativity, collaboration, and communication elements of the 21st Century Skills although all skills may be implemented depending on delivery.

1.3 Project-based learning

Project based learning (PBL) is a method of instruction that encompasses a variety of elements including Role-playing, real-world scenarios, blended writing genres, multiple reading genres, authentic assessments, authentic audiences, real-world expertise brought into the classroom, units that assess multiple skills, units that require research and comprehension of multiple subjects, student choice, collaboration, and multiple methods of communication (Wolpart-Gawron, 2015).

2. Methods/Activities

The activities described below are divided into two sections although some overlap is likely to occur. These are not meant to be constrictive, but rather to serve as ideas to help teachers foster a love of STEM, in relation to aerospace, early on. These kinds of activities can ultimately generate deliverables that can be used for outreach and further engagement, thus promoting a science identity for all students, including those in aforementioned, underrepresented groups.

2.1 Student Focused activities include

Coloring/activity books, children's informational picture book, launch parties, STEAM carts, STEM FEST, ACES camp, SciencePalooza, and the Brown Bag Lunch Series.

2.1.1 Coloring, Activity, and Picture Books

Teaching young students about advanced concepts is best done in a format they recognize. The first iteration of the coloring book was distributed as part of a larger event, a launch party (detailed in 2.1.2). The writing teacher collaborated with the art teacher to create the final product with a student spearheading the editing. In this instance, the content was related to the first CubeSat, The WeissSat-1, which was launched December 2018.

The coloring book included a brief history of the Wolverine CubeSat Development Team, the mission, and goals for the future.

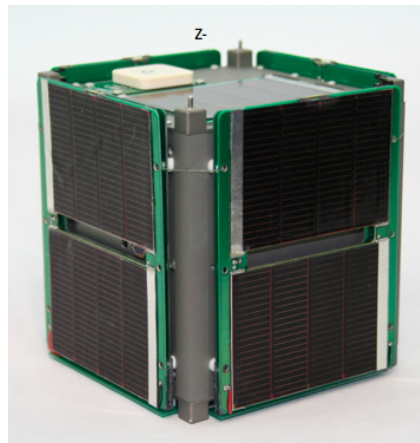


Fig. 1. First middle school CubeSat, WeissSat-1. Image Courtesy Kevin Simmons

A middle school student used an online publishing program to design cartoon content to accompany the text, and the English text was translated into Spanish and Mandarin by students in the world language department.



Fig. 2. WCDT 2018 K-5th Coloring Book. Image Courtesy Kevin Simmons.

The second version is in the planning stages with the new Wolfpack Team to accompany the creation of the second CubeSat, the CapSat-1. These incoming sixth graders began the work during the school quarantine for COVID and development is ongoing. It will include word puzzles and more to engage young students in aerospace terminology. This activity develops 21st Century Skills with a particular focus on collaboration, communication, technology, literacy, and more.

In 2021, students, recognizing a lack of higher-level informational STEM picture books for use in the classroom collaborated to produce a book detailing the efforts of the International Space Station and SpaceX's vertical landings. The book, available on Amazon, was researched, authored, and illustrated by students and

proceeds benefit their CubeSat Development Team for future hardware purchases.



Fig. 3. Picture Book written by students, 2021. Image Courtesy Kevin Simmons.

2.1.2 Launch Parties

As mentioned above, a launch party was held schoolwide in conjunction with the launch of the school's first satellite, the WeissSat-1. The coloring book cited in 2.1.1 was released as part of this special day. Students need not launch their own spacecraft in order to plan a launch party; instead, these can be created in conjunction with any planned launch. For this event, grades K-8 participated in revolving stations, which included read-alouds of the coloring book, a coloring contest, Newton's Laws field day stations such as StompRockets, oversized Lego design challenges, and bottle rocket launches. Middle school students taught Newton's laws to the younger students in conjunction with the stations, followed by a school-wide lunch with CubeSat centerpieces designed by the robotics students on their 3D printer. Skills addressed through this activity include critical thinking, creativity, collaboration, leadership, and social skills.

2.1.3 STEAM Carts

Speaking in public in a variety of venues helps students feel more comfortable with sharing their content knowledge. Providing opportunities for students to speak also builds confidence. Middle school students with a passion for both younger kids and science presented lessons and experiments to visiting children at the South Florida Science Center and Aquarium. Experiments ranged from Slime/Oobleck creation to engineering design contests. Skills reinforced in this activity include communication, creativity, and social skills.

2.1.4 STEM FEST

A combination of students in aerospace and public speaking were invited to participate in Palm Beach State

University's STEMFEST, an outreach event for families, which brought together local STEM aficionados and children of all ages. Participating students ranged from 5th-8th grade, with the youngest of those using the aforementioned coloring book to reach out to pre-schoolers. Middle school students shared about CubeSats and explained how their satellite was built and launched into space. This activity encompassed communication, literacy, flexibility, and collaboration with members of the community.

2.1.5 ACES Camp

For five years, ACES camp has educated and ignited the passion of students from around the world in both their regular and international options. For international camps, students from countries such as China and Canada met in person to design space settlements of the future for competitions. Students and teachers collaborated with students from several other countries



Fig. 4. Student designed WCDT mission patch. Image Courtesy Kevin Simmons

remotely including Germany, Chile, Peru, and more. In addition to learning space settlement design, students learned orbital mechanics, engaged in mission patch design, learned the importance of communication in a CAPCOM activity simulating an Apollo 13 problem, provided by Space Foundation Teacher Liaisons.

Students also embraced the art of debate and public speaking, and camp culminated with presentations at Kennedy Space Center, the South Florida Science Museum, and the host school. This camp is the starting point for those interested in space settlement design competitions, for which several students have participated, including Future Space Scholars Meet and NASA Ames competition hosted at International Space Development Conference. Recently, former ACES campers joined international debate teams for National Space Society's Space Universalization (SpUn) debates where they argued resolutions pertaining to space exploration and the Lunar Gateway. The camp included almost every aspect of 21st Century Skills due to its integrated approach.

2.1.6 SciencePalooza

For the past four years, middle school students have demonstrated their science research knowledge in a school wide fair; however, recently, the fair expanded to include students in primary and intermediate levels. To ensure student engagement, the primary level teachers build excitement about “SciencePalooza.” Children in Kindergarten were mentored by older students and became scientists from the first day they entered class.



Fig. 5. 7th grade Chemistry students mentoring Kindergarten students in 2019. Image Courtesy Kevin Simmons.

The classrooms are designed to encourage curiosity in science. The kindergartners even receive their own lab coats and are exposed to daily experiments. The scientific method is posted around the room for reference throughout the year. Even though they are young, the teachers do not treat them as though they are unable to comprehend, which helped students to feel confident in their selected projects. They then used simple science experiments that they did in class and used science journals to record data. The event culminated in a group presentation to parents and “judges.”

Second grade students start the year by discussing what scientists “do”; they learn about measurement, observation, classification, and how to communicate, findings, etc. Building upon skills from previous years, intermediate are encouraged to do background research on individual topics of interest. Students worked with their Public Speaking teacher to practice oral presentations of their findings.

Middle school students in grades 6-8 enjoyed not only participating in the school-wide science fair but also were happy to mentor younger students by going to their classrooms to help with construction of boards, talk about the scientific process, and to “judge” the young scientists. There is a strong history of science fair success in the middle school grades, so students are motivated to not only choose a topic they enjoy, but to perform to high standards. For the past five years, 90% of these students

have placed 1st-4th, and 18% earned trips to the Florida State Science and Engineering Fair, with many choosing aerospace-themed projects. This success demonstrates how science identity formation at an early age leads to science efficacy, and ultimately, a belonging in STEM fields. A school-wide fair incorporates almost all 21st Century Skills including information, media, literacy, creativity, communication, and critical thinking.

Table 1. 6th-8th Grade Student Science Fair Results, The Weiss School, 2014-2020

	'14-5	Introduction of BLUE-SKY Learning	'15-6	'16-7	'17-8	'18-9	'19-20
Participated in school fair	0		60*	60	60	60	55
Invited to Regional Fair	1		5	21	30	30	30
Placed 1st-4th at Reg. Fair	1		5	17	27	23	23
Finished 1st at Regional Fair	0		2	5	10	4	3
Earned state Sci/Engr Fair Bids	0		2	5	9	3	3
Placed at State Fair	0		2	3	5	3	**
Placed 1st at State Fair	0		0	0	0	2	**
Grand Champions State Fair	0		0	0	0	2	**

*All Students in middle school **Cancelled due to COVID-19

2.1.7 Brown Bag Lunch Series

Throughout the year, local professionals from a variety of careers visited the school to share about their vocations. Students spent lunch hours learning about people in their community and participated in QnA sessions. Brown Bag lunches allowed students to get an idea about what certain jobs entail and how they relate to their neighborhood. Speakers included a surgeon, a flight test engineer, the mayor, and Congressman Brian Mast. While more were scheduled, Covid-19 restrictions precluded the continuation of the series for last school year. The plan is to reimplement if able for the next year due to high student engagement level. 21st Century Skills addressed include critical thinking, collaboration, communication, technology literacy, and social skills.

2.2 Teacher-Centered/PD: includes ESTEAM Teacher Camp, Space Foundation Teacher Liaison, AIAA.

2.2.1 ESTEAM Teacher Camp

Funded by a grant from the Florida Space Grant Consortium, public school teachers from the authors’ county were invited to attend *Equipping Students and Teachers in Engineering, Entrepreneurial, & Aerospace Modalities* (ESTEAM) This week long camp along with a Saturday workshop provided PD and suggested ways educators might incorporate activities such as these to increase student science identity. Teachers were encouraged to bring their learned best practices to their schools and to use stipends to either start a STEM club or augment an already existing program. Educators learned about the CubeSat Launch Initiative (CSLI), the importance of a growth mindset, to connect industry with academia by joining professional organizations within their field including Teacher Liaisons, American

Institute of Aeronautics and Astronautics, and to reach out to local community businesses and leaders to make change in their classrooms. Participants received a PD book *Martians in the Classrooms*, *CubeSat 101* handbooks, and learned about ways to get involved both in their classrooms and in the community. Participants followed up with how the stipend helped their program and offered insight into what makes experiential PBL difficult. Challenges included how to effectively reach the core group of teachers, how to offer meaningful support throughout the year, and in motivating teachers to share with colleagues. Although COVID negatively impacted teacher outreach, the most recent teacher camp occurred in August of 2021, allowing more teachers to benefit from the experience.

2.2.2 *Space Foundation (SF) Teacher Liaison*

Educators from around the world may apply to become Teacher Liaisons. Liaisons employ activities related to space in their classrooms and to develop curriculum that engages students in real world STEM learning. Liaisons connect their school with other organizations, such as school districts, NASA, and more in order to create relationships that foster the “Core 4”: Community Outreach, Teacher Education, Space Foundation Connection, and Student Engagement. Once a liaison, educators are eligible to share content, continue PD, and have access to instructional materials for their own classrooms. Teachers may apply annually on the SF website at <https://www.discoverspace.org/education/for-educators/teacher-liaisons/>.

2.2.3 *American Institute of Aeronautics and Astronautics*

The AIAA is a professional organization for individuals that supports the aerospace and aviation industry workforce in multiple ways including networking, advocacy opportunities, and more. Educators are offered a membership at no cost and receive access to numerous lesson plans, access to educational grants, and other academic support. Opportunities for teachers may exist in their local sections as well. Two authors of this paper, for example, are officers in the AIAA Palm Beach section. More info at <https://www.aiaa.org/get-involved/educators>.

3. Theory

Implementation of the aforementioned activities fits the model for twenty-first century skills with a project-based learning bent. These engaging options have proven to stimulate young students’ interest, and, moreover, excite them for the more advanced options that await them in middle school. To that end, Social Cognitive Frameworks, and Social Cognitive Career Theory (SCCT) suggest that, early on, students begin to formulate an identity that ultimately is reflected in career choices. In addition to providing role models, mentors,

and activities that engage young students, it is imperative to continue the formation of science identity for all students to bolster the STEM pipeline. SCCT is a vocational psychology dealing with “career interests, goals, actions, and performance in relation to domain specific self-efficacy, outcome expectations, as well as contextual and background variables” (Mann, Chen, & Lin, 2019). SCCT shows that students who identify with a certain role, or who “feel” successful in a specific area are more likely to pursue careers in those fields. Erikson’s theory of childhood psychology suggests that children go through several stages in developing an identity. Particularly of note for this research are the competency and fidelity stages which occur from ages 5-12 (McLoud). Since students are developing an understanding of what they do well (efficacy) along with a sense of fealty to the identity to which they identify (belonging), it makes sense to augment classrooms to provide hands-on experiences that provide both group and personal science identity formation. Doing so will allow students from all backgrounds to “see” themselves as “STEM people” early on, which will be especially important for underrepresented groups.

David Kolb, in 1984, built upon the ideas of Dewey and Erikson to create his Experiential Learning Theory, which essentially suggests students learn by “doing.” Students who participate in real-world learning experiences first grasp knowledge in a concrete fashion, then reflect on connections and adjusts thinking based on findings, and ultimately end when students are able to use their learning in new ways, making it their own. The Aerospace and Innovation Academy, as an umbrella, seeks to provide these experiences such as those outlined in this paper and more and offers the models herein as good ways to enhance STEM applications in general classrooms.

Children often begin formulating identity long before they attend school based on their roles and interactions at home [13]. Many scientists claim curiosity, family encouragement in STEM, and access to STEM media played an important motivating factor in how they viewed themselves as “scientists” [4]; however, many underrepresented populations do not have this luxury. Schools can help to close the gap by providing interactions with teachers, activities that foster situational interests and support mastery as well as provide mentors with whom these students can identify more personally.

Table 2. 21st Century Skills in K-5th Activities

BLUE-SKY Learning Student Activities with K-5th grade student participation (2016-2020)	Critical Thinking	Creativity	Collaboration	Communication	Info., Media, & Tech. Literacy	Flexibility	Leadership	Initiative	Productivity	Social Skills
ACES Camp	√	√	√	√	√		√	√	√	√
AIAA banquet			√	√	√				√	√
BDB banquet			√	√	√				√	√
Brown Bag Lunches Talks	√		√	√	√					√
Coloring Book		√	√	√	√			√	√	
Launch Party	√	√	√	√	√		√		√	√
Missileer's banquet			√	√	√				√	√
Museum STEAM Carts		√	√	√	√					√
Science Palooza	√	√		√	√	√		√	√	√
SciTech Conf. Pres.	√	√	√	√	√		√	√	√	√
STEM FEST			√	√	√				√	√
Trip to Frost Museum	√		√	√	√			√	√	√
ESTEAM Teacher PD Camp	√	√	√	√	√	√	√	√	√	√

The academy from which the activities described above were planned has multiple active aerospace teams ranging from interest in high altitude balloons, Ham radio operations, aerospace policy, CubeSats, and lunar rovers. Students also engage in a diverse range of writing contests, design competitions, engineering projects, and public policy efforts that provide authentic STEM reinforcement.

Considering SCCT suggests exposure to real science early on aids in science identity formation, it makes sense for educators to implement activities like those described above to positively impact the STEM pipeline and encourage more diversity in the fields.

4. Results

Results from the numerous activities plotted against student age indicate that very young students (as early as 5-years old) are both interested and benefit from the listed authentic STEM experiences.

5. Discussion

The future of the STEM workforce is in jeopardy, yet it is one of the most important segments of society when it comes to viable and rewarding employment, its impact on technological and scientific advancements, and future innovations that can benefit society. While there is a shortage of young people in general entering STEM fields, students of color, lower socioeconomic status, and women (and any combination of these) are even more scarce. Numbers of students interested in STEM decreases as they enter high school and even more so in secondary education; and once in college, there are fewer students who actually finish STEM careers, choosing instead to transfer out. These findings are significant in that educators can and should play a vital role in identity formation for elementary students who might not be positively impacted elsewhere. Students report when they have opportunities to engage in science practices,

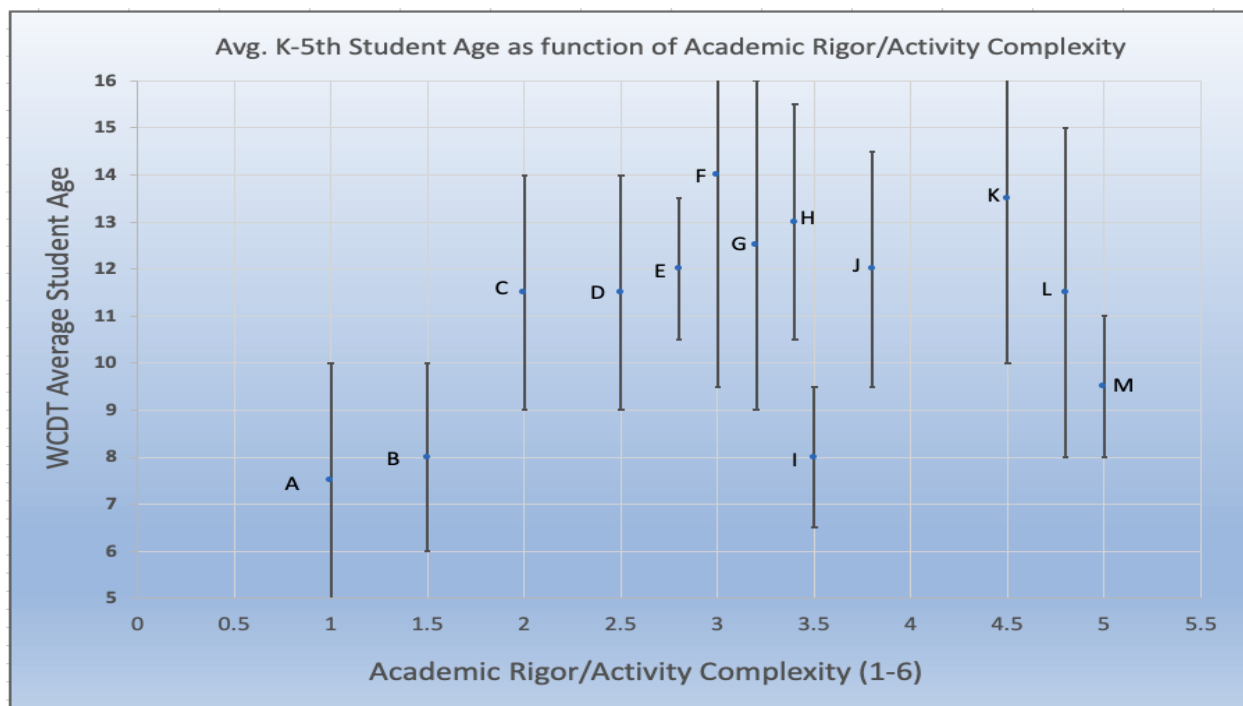
they are more likely to feel recognized as a scientist by their peers, their role models, society, and, most importantly, themselves [13]. Offering PD on SCCT and identity theory would help educators and school officials to understand the extent to which they can enable students to feel like they “belong” in STEM. A simple ranking survey to assess how students identify (e.g. a science person, a sports person, an arts person, etc) would help educators understand their class/groups, and could provide opportunities to expand student possibilities.

Table 3. K-5th Activity Age Ranges and Rigor

STUDENT LEARNING OPPORTUNITY	ID	Min Age	Max Age	Rigor (1-6)
Coloring Book Activity (WCDT History)	A	5	10	1
Launch Party (Stomp Rockets)	B	6	10	1.5
Brown Bag Lunches With Speakers	C	9	14	2
STEM Fest (Community Outreach)	D	9	14	2.5
Museum STEAM Carts	E	10	14	2.8
Trip to Frost Museum	F	10	18	3
BDB banquet (exhibit and network)	G	9	16	3.2
Missileer's banquet (present/network)	H	10	16	3.4
Science Palooza (K-2nd)	I	5	11	3.5
SciTech Conf.-AIAA (present)	J	10	14	3.8
AIAA Banquet (present, video)	K	9	18	4.5
ACES CAMP (Orbital Mech, Debate)	L	8	15	4.8
Science Palooza (3rd-5th)	M	8	11	5

6. Conclusions

Educators should not overlook the importance of early childhood as a strong base to scaffold science identity. While there are many factors that affect students and whether they “see” themselves in a particular field, providing role models who look like students in all subgroups will help solve the STEM pipeline issue. Students who view themselves, and who feel recognized by others, as a “scientist”, report that science experiences in the classroom and beyond and role models who look like they do are primary factors for underrepresented minority students. Likewise, science identity formation contributes to a positive perception of the classroom climate overall [14], particularly when engaged in research experiences that lead to science self-efficacy. Teachers who work closely to align themselves with professional organizations and STEM industry-related professionals will create realistic learning experiences for their students and will more easily meet the requirements to create 21st century students.



Graph 1. Average student age vs K-5th Activity rigor

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Integrating Artificial Intelligence in the K-12 Classroom

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Abstract

The emergence of artificial intelligence (AI) has influenced many segments of the workforce, most notably finance, health, manufacturing, and education. While not commonly a part of standard curriculum in the American classroom, AI is globally utilized within the education sector in the following applications: 24/7 assistance, smart content, and personalized learning. AI is implemented differently within the various levels of education. For example, universities use AI to reinforce learning on a personal level tailored specifically to each student; to do this, the AI observes and investigates the student to learn what is missing from their education and what their academic needs are. At the primary and secondary school levels, AI is used to automate administrative work such as grading and course creation, providing teachers with more to educate students and develop their curriculum. One of the most prominent and helpful types of AI in education is Reactive AI, which works hands-on with students to help them achieve their goals through differentiated and individualized learning. Further, Reactive AI provides universal access for all students, along with tutoring outside of the classroom. While there are many positive attributes to AI in education, there are also several concerns. The primary concern for this integration is the unemployment of teachers, although AI will not replace teachers within the education system, but more-so serve as assistance in administrative and digital fashions. In the future, artificial intelligence in education will become even more important as it assists and enables students and teachers alike through increased efficiency, one-on-one tailored student experiences, automation of administrative tasks for educators, and support outside the classroom. This paper focuses on five specific points related to the use of artificial intelligence in education: 1. Global use of AI in education, 2. Differentiation of AI at different educational levels, 3. The importance of Reactive AI in education, 4. Addressing potential concerns related to AI in the classroom, and 5. Future expansion of the use of AI in the classroom.

Keywords: Artificial Intelligence, educational technology, reactive AI

Abbreviations: Artificial Intelligence (AI)

1.0 Introduction

Artificial Intelligence (AI) is a field of study that combines the applications of machine learning, algorithm productions, and natural

language processing. Artificial Intelligence is a key catalyst of growth and

innovation across all industries, and the education sector is no different. AI has a variety of educational applications, such as personalized learning platforms to promote students learning, automated assessment systems to aid teachers, and facial recognition systems to generate insights about learner's behaviors. According to *eLearning Industry's* Amit Gautam, 47% of learning management tools will be enabled with AI capabilities in the next three years (Guatam, 2019). While AI-powered solutions have been in the EdTech space for some time, the industry has been slow to adopt models in the classroom; however, the pandemic drastically shifted the educational landscape, forcing educators to rely on technology for virtual learning. Now, according to *Promethean*, 86% of educators say technology should be a core part of education. AI has the power to optimize both learning and teaching, helping the education sector evolve to better benefit students and teachers alike.

Artificial intelligence is considered one of the most revolutionary developments in human history, and the world has already witnessed its transformative capabilities in day-to-day occurrences; notably, online transactions, search engines, and cybersecurity, which can respond to certain inputs and external actions instantly, are a few common examples of AI advancements (European Parliament, 2020). Unsurprisingly, AI-based innovations are powering some of the most cutting-edge solutions we use in our daily lives, empowering organizations, governments, and communities to build a high-performing system that serves the entire world. Its profound impact on human lives is solving some of the most critical challenges faced by society, including plastic pollution, famines, and difficult-to-determine medical diagnoses. AI does this by predicting solutions and then using results to make better/more improved predictions. In the issues previously stated, AI functions in multiple ways: taking

aerial shots of polluted waters to identify areas that should be cleaned; detecting regions where food shortages are occurring and predict future circumstances to efficiently supply food to these areas; and recognize minute symptoms to accurately diagnose patients (Chowdhury, 2020). From an educational aspect, AI-powered tools make learning accessible for all students, anytime and anywhere. AI works hands-on with students helping them to achieve their goals through differentiated and individualized learning. Each student learns at their own pace, and 24/7 access makes it easier for students to explore what works for them without waiting on an educator. Additionally, students from all over the world can gain access to high-quality education without incurring traveling and living expenses or having to attend a distant or inaccessible school that may provide a better curriculum.

Most teachers and faculty aren't afraid to admit they struggle with time management, which is understandable given the number of tasks on their daily to-do lists. Educators want to spend more time educating students one-on-one, diving into research, and continuing their own education, but doing so is made difficult in a traditional educational environment. Full-time staff are giving lessons to pupils for an average of 22 hours every week and spending the remaining 29 hours doing "non-teaching tasks" because of their crucial responsibilities (Southworth, 2019). Karandish suggests, "AI can help free up educators' time by automating tasks, analyzing student performance and closing the educational gap," entailing those students will receive a personalized education and more will be able to have one-on-one time with the educator (The Journal, 2021).

2.0 Background

While there are numerous positive aspects to AI in education, there are four key points to what AI can do for the educational field: teacher and AI collaboration, differentiated

and individualized learning, automation of administrative tasks, and, finally, tutoring and support outside the classroom.

Teacher and AI Collaboration

Along with aiding educators in daily circumstances, AI also helps in differentiated and individualized learning: by providing content instruction, testing, and feedback to students of all ages. In addition to providing challenging content, AI can also identify gaps in knowledge and redirect students to new or different topics when appropriate. As Forbes' Bernard Marr states, "as AI gets more sophisticated, it might be possible for a machine to read the expression that passes on a student's face that indicates they are struggling to grasp a subject and will modify a lesson to respond to that" (Marr, 2019). While researchers and teachers alike have feared that increased implementation of AI within the classroom will lead to teacher unemployment, this concern is not likely to happen as the integration of AI will require information and guidance from a teacher beyond what any code or program could provide (*Teacher Advocation*).

Student Advantages

Students today are tied to electronics, using different devices to accomplish various tasks related to both the school curriculum and for entertainment. AI allows students to learn just about anything in a different way because AI as an educational tool can provide hands-on experiences. AI solutions are being integrated with other tech initiatives such as IoT-driven networks and smart technology to offer personalized learning solutions for students. An example is Cognii's AI-based products made for K-12 help students, which employs conversational technology to guide them in open-format responses that also improve critical-thinking skills. Moreover, students can use AI to identify crucial areas in educational performance. Thinkster Math, an

excellent tutoring program developed for use on tablets, laptops, and desktops, combines AI with human interaction to provide students with custom programs. The AI technology helps in tracking work step-by-step and assisting K-8 students in understanding where they made a mistake in a problem or why they are correct.

AI can also be utilized for completing traditional work efficiently; for example, Nuance is a company that makes speech recognition software for both students and faculty, being able to transcribe up to 160 words per minute. Programs such as these are especially helpful for students with limited mobility or ones who struggle with writing. Students using AI therefore gain a technological advantage in learning material from all subjects.

Some countries such as China have recognized the value of AI within classrooms. There, students wear AI-powered headbands that can monitor their educational progress, while, at the same time, alert the teacher if the child is looking somewhere else to prevent cheating.

Teacher Advantages

While AI provides several opportunities for students to thrive both in and out of the classroom (Southworth, P.), it also allows for teachers to maximize efficiency within the classroom. AI and other technological tools are being used to automate tasks such as grading, timetable scheduling, or digital asset categorization, which gives educators more time to engage with students. This helps educators tremendously and allows them to spend more time teaching their students instead of scheduling, grading, etc. AI-driven analytics in education are also being used to identify important trends and delineate key markers to help educators design the most effective classroom experiences. An example of this is Century Tech, a platform that utilizes data analytics and cognitive neuroscience to

create personalized learning plans and reduce workloads for instructors. It is an excellent AI platform that tracks student progress, identifies knowledge gaps, and offers personal study recommendations.

Learning Management Systems (LMSs)

While both students and educators receive individual benefits in using AI, Learning Management Systems (LMSs) help both demographics with their time management by showing due dates. Particularly, LMSs can assure students are keeping track of due dates, complete assignments, etc. Examples of these programs include Google Classroom, Adobe Captivate Prime, Blackboard, Blackbaud, etc. These help students in middle school, high school, and college, but can also aid teachers in teaching assigning material at certain times.

Online Learning Programs

Schools are already implementing different programs with their curriculum. This includes many popular programs such as IXL, ABC Mouse, National Geographic Kids, PBS Kids, and so many more. For higher grade levels, there are harder programs such as (also) IXL, K12, and Adventure Academy. These programs help students learn easier by giving them the help they need whenever they need it. Programs such as IXL are diagnostic and analytic based. ABC Mouse gives a new perspective of learning, and it shows that students learn a lot online, just from simple software, and they can enjoy what they are learning. Many schools are implementing and integrating these software's directly with their curriculum, by assigning classwork and homework on the site, and teachers can actively manage their progress, and give help, when they need it. Online learning programs are helping so many students, and they must be implemented into more schools, especially since online learning is very popular now, as the demand of technology is constantly increasing.

Use of Reactive AI in Education

Researchers note, "Reactive AI functions the way it was programmed with a predictable output based on the input it receives" (Bernard Marr, 2019). Reactive AI is predictable; one scenario will always have the same outcome unless the programming has changed. A popular example of a reactive AI machine is IBM's Deep Blue, which beat chess Grandmaster Garry Kasparov in 1997 (Forbes, 2019). It will teach students unbiased curriculum course material, bypassing the human teacher who is prone to bias and error. The programmer that creates the robot is not prone to bias, because the programmer only makes the robot in its most barebone state possible. The rest of a robot's intelligence comes from algorithms and knowledge that the robot gains in the future. Reactive AI already helps education. Many learning platforms have simple AI taking a student's test scores and showing the student what the algorithm shows they struggle with. It also adapts to a student's question answers and progress, and notices advantages and flaws.

For the advantages, reactive AI can increase the difficulty of the material, by somewhat "reacting" to the student's learning behaviors and algorithms. In the future, this may be even more advanced, possibly creating entire curriculums for every student by picking and ordering pieces from a premade library of items such as lessons, tests, quizzes, assignments, informative videos, and books. Developing Reactive AI may allow schools to spend more money on other underfunded areas. A reactive AI may be able to create lessons for individual students in the future, but with better calibration, they will be able to create entire curriculums for students, while still allowing the teacher to explain the most important concepts to the entire class. This way, everyone remains on pace. The AI could even include small games to make practicing important concepts or methods more fun.

3.0 Addressing Potential Concerns in the AI Classroom

The ethical and societal drawbacks of AI systems are rarely fully considered in K-12 educational contexts. The ethical challenges of AI in education must be identified and introduced to teachers and students. Humans may not think about artificial intelligence daily, but it is everywhere and has been thus for several years. Whether performing a Google search, reading emails, getting a doctor's appointment online, asking for driving directions, or getting movie and music recommendations, society constantly uses the applications of AI, making life easier.

Dependence on AI systems has become even more apparent during the COVID-19 pandemic, where "the growing impact and dominance of AI systems reveals itself in healthcare, education, communication, transportation, agriculture, and more" (Nguyen, 2020). In addition to concerns previously mentioned, there are issues with privacy, surveillance, autonomy, bias, and discrimination to address; however, it is important to acknowledge that educators will have different ethical concerns and challenges depending on their student's grade and age of development.

Future of AI in the Classroom

There are two main ways AI will be used in the future. These consist of AI in assessment and AI in learning environments (Fusco, 2021). Firstly, AI in assessment consists of many different types--, the main two being realistic chatbots and algorithm-based decisions (Raine). Realistic chatbots will be virtual teaching assistants that will be used to help make teachers jobs easier (Botsify, 2020). Secondly, AI will be key in learning environments {Identification programs}. AI will be used to uncover patterns about student performance, and they will help teachers personalize their teaching strategies for students (University World News, 2020). With the reduced workload from AI, teachers

will be able to spend more time improving their education for individual students, as they have much less to worry about. This will drastically increase the quantity and quality of material learned by students in the future.

Privacy Concerns

Privacy violations mainly occur as people expose an excessive amount of personal information on online platforms. Although existing legislation and standards exist to protect sensitive personal data, AI-based tech company's violations with respect to data access and security increase people's privacy concerns. To address these concerns, AI systems ask for user's consent to access their personal data. "Although consent requests are designed to be protective measures and to help alleviate privacy concerns, many individuals give their consent without knowing or considering the extent of the information (metadata) they are sharing, such as the language spoken, racial identity, biographical data, and location" (UMB, 2019). Such uninformed sharing in effect undermines human agency and privacy. In other words, people's agency diminishes as AI systems reduce introspective and independent thought.

Surveillance and Tracking Systems

Through algorithms and machine-learning models, AI tracking systems not only necessitate monitoring of activities but also determine the future preferences and actions of their users. Surveillance mechanisms can be embedded into AI's predictive systems to foresee student's learning performances, strengths, weaknesses, and learning patterns. "While monitoring and patrolling student's actions might be considered part of a teacher's responsibility and a pedagogical tool to intervene in dangerous online cases such as cyber-bullying, such actions can also be seen as surveillance systems which are problematic in terms of threatening students' privacy" (Science Direct, 2015).

Bias and Discrimination

Bias and discrimination are critical concerns in debates of AI ethics in K-12 education. “In AI platforms, the existing power structures and biases are embedded into machine-learning models” (Johnson, 2020). Gender bias is one of the most apparent forms of this problem, as the bias is revealed when students in language learning courses use AI to translate between a gender specific language and one that is less so. For example, while Google Translate translated the Turkish equivalent of “*She/he is a nurse*” into the feminine form, it also translated the Turkish equivalent of “*She/he is a doctor*” into the masculine form. This shows how AI models in language translation carry the societal biases and gender specific stereotypes in the data. Similarly, several problematic cases of racial bias are also associated with AI’s facial recognition systems. Research shows that facial recognition software has improperly misidentified a considerably large number of African American and Latino American people as convicted felons, showing racial bias even in programming.

4.0 Classroom Scenarios of AI Integration

AI can help within the classroom in several ways, and to ensure these programs are safely utilized in the classroom, researchers have studied different scenarios of such benefits. These include the assessment scenario, and the learning environment scenario.

The Assessment Scenario

According to a 2020 Report done by the Center of Innovative Research in Cyberlearning (CIRCL), the assessment scenario is “envisioned going beyond what today’s assessments can measure.” Instead of only grading an assignment, whether that is homework, classwork, or even a test, the AI will find flaws, or disadvantages in the assessment and give feedback immediately to the teachers on what the student is good at, and

what he/she needs to improve on; this is similar to Reactive AI previously discussed. These are integrated in online learning programs such as IXL, Cognii, SAVVAS Realize, and Carnegie Learning, which picks up an algorithm in a student’s progress, and makes the course the most suitable for them, no matter what kind of student they are. One online learning service that stands out, and perfectly shows the assessment scenario in action would be IXL. IXL Learning (ixl.com) is a service where a student can learn so much new information, which includes Math, Language Arts, History, Geography, Science, and even Spanish. The program will detect when the student’s solution is wrong, using a simple if/then statement, then it will tell the student not only the correct answer, but also how to get to the correct answer, so that the student not only knows what their mistake was, but so that they can also learn from it. The program will create analytics and student diagnostics on what the student is doing wrong, and what he is doing well in. These diagnostics are easily accessible by the teacher.

The Learning Environment Scenario

The Learning Environment Scenario is notably featured in social learning, meaning to accomplish a goal as a group. AI will support the orchestration, or automation of multiple types of classroom activities, which include classwork, homework, and even work from online services and programs from the assessment scenario (CIRCL AI Report, 2020). This is very different from older AI technology which focuses on the progress of an isolated individual. This focuses on group progress. This shows students how it is like to work as a team member, and overall, accomplish a goal as a group. This also includes support for students to organize, manage, and connect their overall knowledge to a group goal. Once again, this scenario focuses more on a group goal, and is featured

in social learning, because it is just as important to work in a group, compared to working alone, in an isolated environment.

5.0 Conclusion

Undoubtedly, artificial intelligence will drastically change the education field even more than it already has. It provides many useful utilities for both teachers and students, including 24/7 assistance, automatic grading, curriculum creation, and personalized learning. This paper has covered five topics: the global use of AI in education, differentiation of AI at different educational levels, the importance of reactive AI in education, addressing potential concerns related to AI in the classroom, and future expansion of the use of AI in the classroom. The features mentioned above are being implemented across the world, and benefiting students and teachers worldwide. Reactive AI is being used as well, as its predictability allows for accurate information to be given to students by bypassing bias and error, the best assignments to be sent, and correct grades to be outputted. AI will assist the teacher and automate several tasks that will allow for the teacher to focus on the children, and it will help the teacher improve each individual student's education.

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Using Learning Styles to Engage Gifted Learners in Real-World STEAM Applications

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Abstract

Gifted and exceptional students are thought of ubiquitously as being capable of comprehending complex material in a plethora of subject areas. There is, however, a disparity between those who can demonstrate their full capabilities and those who may need the help of accommodations. When viewing statistics on the prevalence of learning disabilities, researchers and educators alike can note a large percentage of students who are both gifted and twice exceptional, needing extra support to educationally thrive. The Center for Disease Control (CDC) suggests that 11 percent of American children have attention-deficit/hyperactivity disorder (ADHD); the International Obsessive-Compulsive Disorder Foundation (IOCDF) states that one in 200 have OCD while Johns Hopkins Bloomberg School of Public Health expresses that one in 54 children are autistic. Many students who are both gifted and exceptional express difficulties within the classroom because their educational requirements aren't recognized; some may be placed in a high-stimulus or distracting environment, while others' minds may drift because of the unengaging content. As a result, these children often experience loss of self-esteem, display selective mutism, or even develop a fear of failure. When exceptional student educational needs aren't met, gifted students aren't able to learn to their full potential and may even fall behind the traditional on-level curriculum.

Educators often find challenges when it comes to nourishing passionate and dedicated students in part because it is difficult to navigate the varying academic levels and emotional needs in a typical gifted classroom. This is even more true in classrooms that are not identified as solely gifted, but rather have gifted students as part of the general population. Usually, teachers find it difficult to implement gifted methods and materials because it is challenging timewise, costly, or even unmanageable for an already hefty workload. Considering gifted education includes multiple populations, ranging from those who are on the gifted spectrum to those who are profoundly academically advanced, an educator's approach can make a difference in establishing student and teacher success. There are several possibilities, however, to efficiently educate neurodivergent and/or gifted children within the classroom even in online settings. One way educators can address the needs of all students is to adopt a BLUE-SKY Learning philosophy with an emphasis on a prominent growth mindset, which can promote student engagement and motivation through teamwork and cooperation. Captivating gifted children in specific academic fields, particularly in STEAM, not only generates student incentive in tackling challenging content, but also forges educational bonds between unique students. An example of the Aerospace and Innovation Academy with a focus on the Wolfpack CubeSat Development Team is offered as a model for gifted student engagements in STEAM.

Keywords: Gifted education, Blue-Sky Learning, exceptional education, growth mindset, STEAM education, experiential learning,

Acronyms/Abbreviations: Attention-Deficit/Hyperactivity Disorder (ADHD), Obsessive Compulsive Disorder (OCD), Center for Disease Control (CDC), Science, Technology, Engineering, Art, Math (STEAM), Wolfpack CubeSat Development Team (WCDDT), Twice-Exceptional (2e)

1. Introduction

Definition of Gifted and Twice-Exceptional Students

Gifted and specialized students are defined as students or youth who exhibit high achievements and require accommodations not ordinarily found in traditional

classrooms to fully develop student outcomes. It is often a misconception that gifted students are academic wizards with no trouble learning challenging content. Instead, the reality is that some gifted children also have learning disabilities, including, but not limited to, autism, dyslexia, and ADHD; these children are known

and classified as twice exceptional or 2e students. There are countless other labels for gifted children, and while these categories may have some commonalities, every gifted student is different and must be recognized for their individualities. This is especially true when it comes to teaching STEAM, which requires attention to complex content to create a sense of STEM identity and success.

With the terms “gifted” or “exceptional” comes the expectation that these students can comprehend materials multiple grade levels above their peers. According to the Children and Adults with Attention-Deficit/Hyperactivity Disorder website, “Gifted children suffer when undue expectations exist without consideration of other complex characteristics that define their day-to-day experience” (Skolnick, 2017). When school systems fail to recognize the needs of each gifted or 2e student, these children tend to become caught in a mental “tug-of-war” with themselves; for example, children with ADHD tend to focus on their individual shortcomings, illuminating the negatives and disregarding their individual positive traits that also accompany their giftedness.

Considering that learning disabilities are often portrayed in a negative light, uninformed instructors sometimes take less time to adapt lessons that reflect student strengths, which can unwittingly hurt students academically. In addition to the self-imposed stress that unrecognized potential brings, students can become impulsive, sensitive, and frustrated as a response. Whether a student with learning disabilities is considered gifted or not, school systems and educators must provide an inclusive and safe learning environment for all types of students to be successful.

There are several different types of gifted and specialized students that must be recognized within the classroom although students who fit a category should not be marginalized or placed in stereotypical box. There are three common types: the successful type, the challenging type, and the underground type. Understanding the differences and best-performance conditions can improve comprehension, comfortability, and behavior in a classroom setting. Moreover, educators and researchers who specialize in gifted fields can utilize broader methods and strategies to accommodate all students, regardless of their personalities or work motives. The Wolfpack CubeSat Development Team, a component of the Aerospace and Innovation Academy, is offered below as a good STEAM model for engaging the minds of all these types of gifted students.

2. Modalities and Learning Struggles of Twice-Exceptional Students

The individual learning styles of twice-exceptional students differ greatly from neurotypical gifted children. Personal traits and preferences of learning styles within classrooms may vary compared to their peers, but such

accommodations can heavily influence performance. For instance, while a neurotypical student may display the ability to concentrate for average or long periods of time in each subject, those expressing both gifted and exceptional traits may only concentrate on desired and specific topics. Furthermore, 2e children may experience auditory, visual, or general sensory sensitivities, making a typical classroom setting potentially harmful in gaining motivation and effectively learning. Recognizing learning modalities and personal interests, along with environmental accommodations, promotes individualism and comfort in hard-to-manage curriculums.

In schools worldwide, 2e children tend to be neglected within the curriculum, often experiencing fast-paced topic learning without having personally interesting discussions; this, in turn, can add to comprehension difficulties. Schools often find challenges accommodating students with 2e challenges, namely dyslexia, where reading struggles obstruct academic capabilities. One may argue that those exhibiting dyslexic traits should be identified and tested at early ages; however, one must also consider the funds and resources needed to do so. With some families lacking sufficient income for proper diagnoses or not being offered conducive academic outlets, undiagnosed students may continue along an educational path of underrepresentation. Alarming, in an abundance of instances, a student exhibiting both 2e and gifted qualities will not receive the proper accommodations and may end up feeling discouraged or confused as a result.

Model Stem Programs for Gifted To aid individual modalities in 2e students, several programs and institutions have turned to research and hands-on education to promote continuous interest and involvement in learning. Specifically, such programs connect a typical curriculum to STEM education and promote out-of-school individualism via personal discussions to show 2e children the benefits of learning for enjoyment.

Davidson Institute Certain organizations have turned to both virtual and in-person learning to effectively acknowledge individual learning styles of gifted and twice-exceptional students. In 2000, the nonprofit Davidson Institute for Talent Development, located in Nevada, U.S., was established by former entrepreneurs in hopes of recognizing profoundly exceptional students throughout the nation. This program offers several opportunities both year-round and during the summer months for gifted children of all ages, including the Young Scholars program, which recognizes twice-exceptional students and their educational futures, and the Fellows scholarship program, which provides students with grants for pursuing a specialized education in a chosen STEAM category. Additionally, year-long

middle school programs at the Davidson Institute foster passions for academic and social skills, adapting to individual needs and enjoyments of every student. In 2017, the Davidson Academy offered an online campus for students nation-wide to enroll in either the middle or high-school level; and while this is a step towards equity amongst exceptional learning, certain students may not be able to efficiently learn in a virtual setting. Although the Davidson Institute may not be ideal for families living in different states, or who wish to enroll their children in year-long, in-person exceptional programs in high school, teachers can model their environments and activities to aid exceptional students in flourishing in-class; this includes implementing topics of STEAM and hands-on activities into the curriculum (Davidson Institute, 2021).

The GOLD Program Another program that is modeled particularly for the exceptional learner is the GOLD Program in Vancouver, Canada. This program provides an outlet for 2e children to discuss learning motives, problem solving, or personal topics as a collective group, as William and Mary's Marcy Douglass states. GOLD teachers specialize in twice-exceptional support, providing weekly discussions in topics of interest, along with additional academic help (Bees, n.d). Furthermore, this program was designed for students to continue the program throughout high school to continue identifying personal strengths and strategies for the future. This program is only one of the several global initiatives that provide 2e children with support, allowing for both academic individualism and personal growth within desired fields. (Douglass, Tieso 2007). Compared to the Wolfpack CubeSat Development Team, the GOLD Program offers appropriate accommodations for exceptional students, but fails to offer STEM outlets in which such students may benefit from. Therefore, while the GOLD Program can certainly be modeled in classrooms, STEM education provides greater opportunity for collaboration and growth.

2. The Wolfpack CubeSat Development Team (WCDDT)

The Wolfpack CubeSat Development Team (WCDDT) uses several problem-solving and teamwork-based methods to educate gifted and exceptional students of all ages. The WCDDT offers real-world experiences in the aerospace and public policy realms, including conferences and debates, writing technical papers, and several other STEM opportunities. Students gain a sense of cooperation and real-world application by working in teams and small groups to complete different projects and solve STEM-based problems through Project-Based Learning (PBL). While this group meets after-school (both physically and virtually), this learning style can be utilized in daily classrooms as well. For example, High Altitude Balloon (HAB) launches provide students with

insight into higher-latitude conditions in preparation to launch a CubeSat (a miniature space satellite used for space research). Not only are these launches educational, but they are also engaging and hands-on, especially for younger students. The WCDDT uses HAB missions as ways to train new members in set-up, telemetry, and launch conditions as well as to educate elementary-aged students who view the launch with interest. The WCDDT has completed several balloon launches to date and looks forward to more in the future as they expand their outreach to other schools around their county and state.

While HAB launches are exciting to Wolfpack members, the primary goal of the WCDDT is to build, fly, and launch CubeSats. Building upon the knowledge and understanding from HABs, students apply concepts to future CubeSat mission proposals. The teams' first accepted proposal was named The WeissSat-1, which collected inflight telemetry while testing extremophile bacteria in low-Earth orbit (LEO) using fluorescent dye to show whether the bacteria was dead or alive. A secondary proposal called the CapSat-1 was also accepted and is expected to launch in 2022. Students also recently submitted three new proposals to NASA's CubeSat Launch Initiative, and results will be released in March of 2022.

In addition to CubeSats and outreach projects, Wolfpack teams also engage in a diverse range of design competitions, engineering projects, and conference presentations. In the recent years, even during and post-COVID-19, the teams cooperatively participated in several competitions for possible selection in numerous conferences, including this year's International Astronautical Congress in Dubai, where the teams presented their aerospace-related research. Students have created a coloring book, a "how-to book" for teachers, and have also written a children's book to educate both educators and younger students. Furthermore, students regularly attend events such as StemFest, Engineer It, and more to interact with other members of the STEAM community. Such involvement in public or even personal competitive projects can promote continuous engagement within interested students.

Placing such students in environments with limited engagement and hands-on learning in mundane classrooms evidently causes issues—entailing that 2e children are not given the proper, nor comfortable, environment to learn in. However, broad strategies to support 2e children both in and out of the classroom help to foster confidence and assurance for success. As evidenced from Wolfpack CubeSat Development Team and similar programs, students expressing their passions in captivating and collaborative ways promotes pupils to interact with their classmates, while also learning about

personal strengths and weaknesses without the constraint of overwhelming stimuli. Furthermore, peers will understand that such differences and accommodations do not imply that 2e students are incapable, but rather that they absorb material in different fashions. Although few programs like these exist, such groups of students and educators not only learn about engaging topics, but also form lifelong bonds, a sense of teamwork, and individuality. Paired with Blue-Sky learning, the Wolfpack program allows students to learn and cooperate within their assigned problem-solving tasks. Twice-exceptional children often display immense interest in differing STEM fields, focusing on interweaved topics of astronomy and aerospace, animals and the environment, or chemistry and advanced mathematics, that should be proudly expressed within the classroom.



Fig. 1. WCDDT students preparing to launch a HAB payload (Courtesy K. Simmons)



Fig. 2. Launch of the Falcon-9 carrying the SSO-A Mission Dec. 3rd, 2018, from VAFB. Image Courtesy SpaceX

CONFERENCE / BRIEFING / BANQUET	YEAR PRESENTING
AIAA Section Banquets	2017, -18, -19, -20, -21
Missileers Banquets	2017, -18, -19, -20
Int'l Astronautical Congress (IAC)	2018, -19, -20, -21
SmallSat	2018, -19, -20, -21
Humans to Mars Summit	2018, -19, -20, -21
White House OSTP	2019
NASA HQ	2019
AIAA SciTEch	2020, -21
COSPAR	2020
AIAA YPSE	2020
AIAA Next Gen	2020
Global Space Exploration (GLEXP)	2020

Table 1. Conferences, Briefings, and Banquets Attended

3. Gifted Legislation and Policies Current legislation is supposedly designed to provide financial and educational accommodations for students with disabilities, including 2e students. Although these mandates are in effect, many students that are undiagnosed are not federally protected. Along with a lack of financial aid, programs similar to the WCDDT may be difficult to implement on a school-wide basis, considering public schools either lack the funds or a desire to invest in 2e specialization. In recent years, certain legislative acts have attempted to take a stand against ableism and financial struggles for exceptional students within the education system, although few have been successful.

Jacob K. Javits Act: Low academic support for gifted and twice-exceptional students is seen throughout the United States' educational system because of inadequate financial subsidizing. The federal government does not provide enough funding for school districts to extend accommodations and ways for gifted children to educationally flourish. In limited cases, private schools, or schools with funding for gifted programs will offer more hands-on STEM experiences to promote individual and collaborative thinking. This style of learning allows students to be engaged both in and out of the classroom, while some schools with limited funding may be restricted from offering similar programs by their administration. However, there are some programs that invest in specialized twice-exceptional STEM education that can attempt to alleviate some of this concern. One such program is The Jacob K. Javits Gifted and Talented Students Education Act, which is a federal program that classifies, and aids gifted students who are frequently underserved. These students consist of people of color, women, students from lower socioeconomic backgrounds, those who are English language learners, or those who have disabilities. The program aims to lower gaps in achievement and to strengthen the foundation of equal educational opportunities for all U.S. students. While the act is an appropriate measure in

limiting learning gaps, its effectiveness does rely on parents, responsive teachers, and innovative school administrators to confirm 2e students are getting the appropriate accommodations. Since the act's inception, studies have shed light on its strengths and weaknesses, many of which reinforced the problem of lack of federal funding. According to *EdNote's* Michael Griffith, a study from Davidson Institution found that the federal government grants \$12 million annually to support the Javits program, but such an amount does not nearly equal five dollars per funded twice-exceptional student. Moreover, "four of the 32 states that provide gifted-and-talented (GT) funding actually fully fund the needs of GT students." Therefore, while the goal of the Jacob K. Javits Act is hopeful for financially and educationally unaided students, a lack of federal funding and improper use of said funds weaken the initiative's impact (Griffith 2016).

FAPE Another federal law ensures that all students who have disabilities receive a free, appropriate public education, also known as FAPE. Within FAPE, children may be tested to see their potential of possessing disabilities and are then taught accordingly in school; families are provided with financial compensations for these specialized programs so their child can receive a proper education without facing a burdening cost. Although this program entails that families of children requiring an Individualized Education Program (IEP) are provided the necessary accommodations, the FAPE program also demonstrates social and educational inequalities because of the inaccurate yet determinate tests. Students who are gifted or advanced but who do not fall under the "disabled" category are dismissed from the possibility of being twice exceptional, which leads the student prone to confusion and setbacks within the classroom while their families are not financially compensated. FAPE, therefore, does not ensure legislative protections and financial opportunities for all twice-exceptional students because of the intertwined logistics and highly determining assessment inaccuracy. In turn, students are given negatively connoted attention based on misconceptions of their disabilities and are judged based on their supposed weaknesses rather than their gifted abilities to comprehend advanced content. If financial cost limits lead states to reduce assessment and services to students that require specialized conditions, this will lead to a continuous divide in an already fractured system (Gilman et al, 2013).

The differences between public and private schools regarding their specialized educational opportunities creates a harmful social divide for families with disabled and/or gifted children because of how specialized programs are not affordable for all families. Children that require academic attention because of their individual traits receive this support based on their family's income rate, rather than their yearning for

appropriate schooling. While private schools with smaller populations may be susceptible to reinforcing 2e programs compared to larger public schools, public institutions are also more likely to lack the funding to provide these programs. Therefore, while one can compare the abilities of private and public schooling systems in a specialized sense, both are funded differently and have varying educational abilities for twice-exceptional students. As a general claim, twice-exceptional students have a passion for learning, although financial decisions lie out of both the family's and child's hands because of the financially dictated public vs. private system that determines the presence of specialized education.

In most public schools, a general curriculum and classes that are offered do not have an objective of helping children with specialties to succeed. This is not because they don't always want to help children thrive but because they lack resources, funding, and specialists in the field to help establish an efficient foundation when governmental funding is not available. Moreover, an influx of undiagnosed or unsupported twice-exceptional children paired with absence of learning disability education leads to failure within 2e learning opportunities. Local and state legislators often fail to recognize that these children should not be classified as incapable of learning and developing, but that schools and legislation need to adapt to conditions that best fit the specific needs to allow them to learn.

4. Theory

In promoting hands-on, advanced learning, educators can reinforce several philosophies and techniques to aid gifted and twice-exceptional students. One such philosophy is "BLUE-SKY Learning." BLUE-SKY, coined by educator and space entrepreneur Kevin L. Simmons, stresses the use of a growth mindset to achieve seemingly difficult-to-reach goals. It further emphasizes these goals can be achieved by using patience, persistence, and a positive approach to failure. The Wolfpack, for example, employs this philosophy by employing project-based learning with experiential learning theory.

Project-based learning is an underlying practice that involves team leadership and mentoring; this educational philosophy enables students to be involved in the learning process opposed to receiving direct lectures from educators. Moreover, project-based learning allows students to progress in comprehension and skill abilities by being able to work for lengthy periods of time, exploring and responding by engaging, and analyzing complex questions, problems, or challenges. Additionally, Blue-Sky assists in STEM education by connecting students to real-world problems; students are given a challenge and must find a tangible solution.

Since real-world, hands-on applications are the norm for the WCDT, experiential learning theory, as promoted

by educational theorist, David Kolb, is at the forefront of the STEM experience offered by the Aerospace and Innovation Academy. Kolb offers learning styles that are reinforced through students who learn by first hand involvement. In his 1984 seminal work on this theory, Kolb suggests that students learn in three stages: there is first the content, followed by an activity, and then reflection whereby the student can take the knowledge to the next level. Creating and designing CubeSat missions is a prime example of this theory in action, and while classrooms around the country need not send satellites into space, they should embrace the modalities of Kolb's learning styles in order to make meaningful connections for gifted learners.

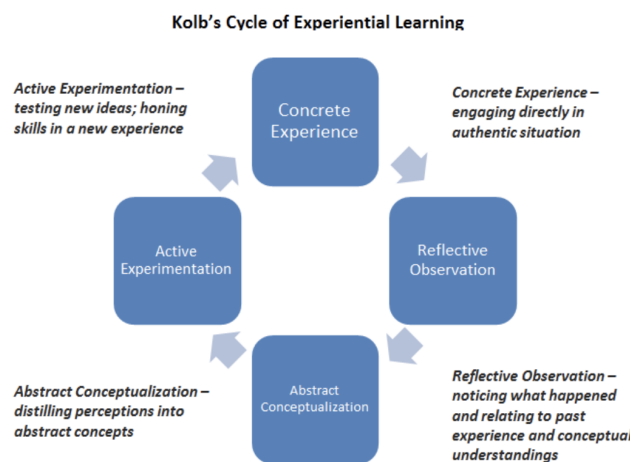


Fig. 3. Image courtesy: Boston University

5. Conclusion

Meeting the needs of gifted and exceptional students continues to be a concern, particularly in the post-COVID-19 educational world. By understanding that giftedness is not defined by a single definition, educators and legislators can better understand the diverse student population and their varying levels. Moreover, employing project-based and experiential learning both virtually and in physical classrooms allows challenges often encountered by exceptional students to be overcome in engaging fashions. The Wolfpack CubeSat Development Team is one such example of a program that engages varying levels of gifted and exceptional students as they participate in real-world STEM experiences. By working together to complete a task, and by utilizing student passions and interests, the students learn both individually and with a team. In addition to project-based and experiential learning, Blue-Sky philosophy should be embraced to encourage students to work hard at large tasks and to acknowledge failure as a way to foster rounder education, considering such a philosophy promotes cooperativity, patience, and persistence within a unique classroom.

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STEM in a Post-Covid World: Using Distance Learning to Enhance Equitable Student Engagement

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Abstract

At the onset of the COVID-19 pandemic, schools turned to virtual learning to proactively teach their students. Although there have been signs of moving back to some sense of normalcy, schools will still need to provide distance learning options for those that are unable to physically return; while distance learning can be a valuable way to reach students who cannot attend in-person, it isn't short of complications. Adam Stefanile, a professor from Columbia University, suggests changing content knowledge to be more relevant to students in a pandemic-affected world may be a challenge because of how learning styles can differ in an online environment. For instance, students face issues with being in front of a screen all day, and they often experience difficulties in concentrating. Regardless of this challenge, educators must endeavor to present STEM content to all students, no matter the age or what learning style, as STEM remains an important workforce option for today's students. It is challenging enough to engage young elementary students in-person, but when tasked with online education, it is an even tougher and harder job. *Pew Research Center* states, "half of Americans think that young people don't pursue STEM because it is too hard"; however, if STEM is introduced at a young age, which will help them to maintain interest with age, then the STEM pipeline in this country is more likely to be solidified therefore, it is even more essential that educational systems embrace the opportunities to reach young students post-COVID-19.

This paper will address the ways that STEM content may be implemented to elementary classrooms who participate in distance learning. Hands-on learning, or experiential learning, can still take place even in a virtual setting, although it requires energy, planning, and technology to occur. While there may be disadvantages to virtual learning that can complicate consistent comprehension, implementing technology as a tool and finding ways to continue pre-existing successful face-to face programs in an online venue will increase the likelihood that relevant STEM concepts are retained. Although the research in this paper is primarily related to elementary-middle school aged students, it is good practice for all online students in general.

Keywords: aerospace education, cooptation, educational equity, online education, STEM

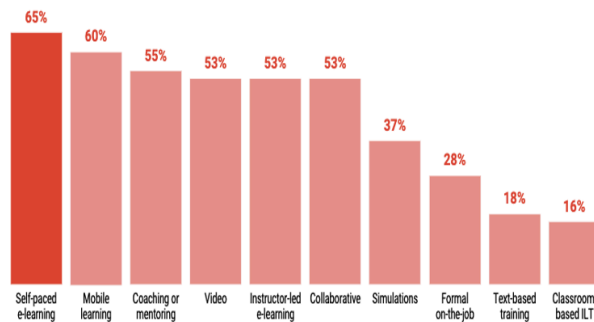
Acronyms and Abbreviations: CSLI: CubeSat Launch Initiative, FLVS: Florida Virtual School, HAB: High Altitude Balloon, MOOC: Massive open online course, STEM: Science, Technology, Engineering, and Mathematics, WCDT: Wolfpack CubeSat Development Team

1. Introduction

In 2020, the new educational challenge that teachers faced was how to equitably teach students during a nationwide quarantine. Out of necessity, most schools switched to online learning, and since such a dramatic investment in technology has been made, schools will likely continue to offer online options. As evidenced by the Figure 1, the amount of material that was delivered online has drastically increased and it is likely to remain a viable option to traditional educational deliveries. Considering this is an exclusive shift compared to how education has been traditionally taught, it is important that all subjects remain challenging, accessible, and engaging for eager-to-learn students. This is especially true for STEM subjects, since these areas are crucial in

preparing students for future in-demand careers. The STEM pipeline in the United States continues to grey, leaving a wide variety of career possibilities for students who not only exhibit interest but who continue in the field through post-secondary education and beyond; however, the education system does not hesitate to promote students in gaining a STEM identity before entering higher education. Instead, the younger, elementary years are crucial to help students gain a strong grasp on STEM content as reinforced by *Mand Lab*. *Mand Lab* is a database that allows users to have access to STEM activities, which also claims, "there's no stipulated age or time to start the basics of STEM, meaning it's never too early to start teaching your child;

the ideal way to implement the concepts is by introducing them to nature or environmental surroundings” (Marak, 2020). Many young students start out enjoying STEM activities, which often combine learning with hands-on, fun activities.



Figures' source: Chief Learning Officer *Business Intelligence Board's "2020 Learning State of the Industry," N=978. All percentages rounded.*

Fig.1. Which learning delivery methods are expected to increase in the next 12-18 months? Courtesy of <https://www.chieflearningofficer.com/2020/07/17/the-rise-of-e-learning/>

This often leads to a desire to pursue a STEM career; but something happens along the way to that degree, and according to the 2019 US Census Bureau, “among the 50 million employed college graduates ages 25 to 64 in 2019, 37% reported a bachelor's degree in science or engineering but only 14% worked in a STEM occupation.” Lack of real-world experiences in STEM early on can lead to a disconnect that is evidenced in the numbers of students who ultimately pursue STEM as a career. Further, if there are no real-world connections, students often do not find role models who can guide them along the way. Students undertake other interests, other opportunities, and they pursue a career in other areas; eventually, this means that fewer and fewer people pursue careers in STEM while at the same time the greying pipeline continues to widen.



Fig. 2. Wolfpack CubeSat Development Team logo. Courtesy of Kevin Simmons.

One way educators can help mitigate this issue is by creating STEM activities that help young students “see” themselves as scientists; which, in an online setting, can seem challenging, but is necessary in promoting the scientists of tomorrow to thrive. One example of an educational program that seeks to inspire younger students with real-world STEM experiences is the Aerospace and Innovation Academy’s Wolfpack CubeSat Development Team (WCDT), located in Palm Beach Gardens, FL. Although the group is centered in Palm Beach County, the need for online opportunities has increased membership to include students throughout the state and other states as well. The WCDT is purposed to design, build, and launch CubeSats, which are a smaller version of larger satellites that perform research for educational purposes. While most of these satellite teams are university-aged, the WCDT is made up primarily of middle school aged students who mentor their even younger peers through outreach and collaboration.

2. Advantages and Disadvantages of Online Educational Programs

COVID-19 has taken a toll not only on the United States, but on the entire world. Students have been forced to do virtual school from their homes and there has been a concern about inequities that technology can bring, particularly to students in rural and socioeconomically-disadvantaged areas. Many students opted for homeschooling while others had little choice to keep their education underway, but these options are not without difficulty. Many students are unable to focus on learning from home due to distractions and personal issues from increased screen time. Adding on to those issues, challenges with technology due to overpopulated servers or areas lacking service make the process even more difficult. According to *Inside Higher ED* “students in face-to-face courses perform better than their online counterparts with respect to their grades, the propensity to withdraw from the course, and the likelihood of receiving a passing grade” (Lederman, 2021). Many students also lack socialization when they are online (Fleming, 2021).

According to *We Forum*, “Kids learn better in class than when studying from home, finds teacher survey. A McKinsey survey suggests that children still learn better through classroom-based teaching.” According to *CNBC*, 75% of college and high school students and their families prefer to have in person-only or hybrid learning next semester (Hess, A. J.). Many students are unable to focus online as their mobile devices are nearby and cause distractions every time they receive a text message or a call. Moreover, students say that being online and in quarantine had a negative effect on their social lives.

Although online learning has many disadvantages, there are silver linings as opportunities to change can have a positive impact, notably in allowing distant students to join a class when they may not have

otherwise had the option. By having online classes, students are able to call into class when sick or even on vacation without missing a moment of school. Many schools use programs such as Zoom, Skype, and Google Meets to deliver their content, while also opening opportunities for students to collaborate in breakout rooms.

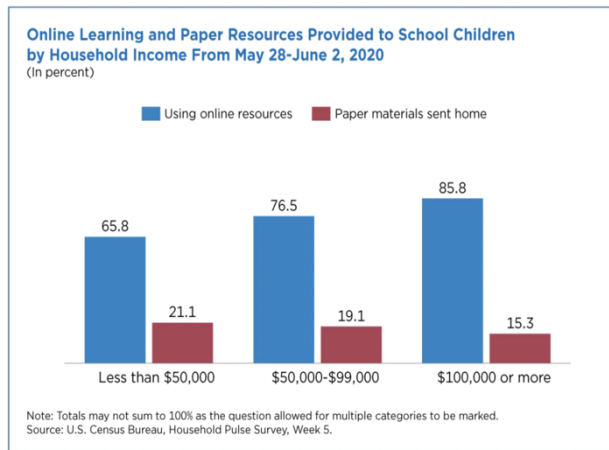


Fig. 3. Online and paper resources for students learning from home in 2020. Image courtesy of US Census Bureau.

While traditional learning has students working in classrooms full of children, this new online environment can be positive and negative depending on the situation. Other students in the classroom provide for social interactions, yet they also provide distractions. On online platforms, teachers have full control over who can and cannot speak but it also can put a damper on the educational curiosity of students who may not be able to engage in meaningful discourse as they normally would. While there are typically fewer classroom distractions online, there can be a significantly larger amount of home interruptions, while also lacking typical classmate interaction compared to in-person education (NSTA, n.d.).

3. Physical and Mental Health Impacts

While both in-person and virtual learning have positive and negative qualities, a virtual education can lead to more noticeable distractions that can be difficult to address. Long-term and ongoing breaks in educational continuity can result in learning gaps. E Dorn, et al, notes that, “the impact of the pandemic on K–12 student learning was significant, leaving students on average five months behind in mathematics and four months behind in reading by the end of the school year” (Dorn, 2021). The pandemic and virtual learning entailed that students began to fall behind in school, as some cannot focus in the home environment and are facing more difficulties than before. J. Verlenden states, “parents of children receiving virtual or combined instruction more

frequently reported that their child’s mental or emotional health worsened during the pandemic and that their time spent outside, with friends, and engaging in physical activity decreased. Regular physical activity is associated with children’s improved cardiorespiratory fitness, increased muscle and bone strength, and reduced risk for depression, anxiety, and chronic health conditions (e.g., diabetes); therefore, these differences in physical activity are concerning. Likewise, isolation and limited physical and outside activity can adversely affect children’s mental health” (Verlenden, 2021). This is important considering parents won’t necessarily send their children outside, which causes a lack of motivation to partake in the needed exercise. Students of all ages have been impacted, and educational researchers note: “the pandemic widened preexisting opportunity and achievement gaps, hitting historically disadvantaged students hardest. In math, students in majority Black schools ended the year with six months of unfinished learning, students in low-income schools with seven. High schoolers have become more likely to drop out of school, and high school seniors, especially those from low-income families, are less likely to go on to postsecondary education. The crisis had an impact on not just academics but also the broader health and well-being of students, with more than 35 percent of parents very or extremely concerned about their children’s mental health” (Dorn, 2021).

These issues easily lead to gaps for all students, but some are more seriously impacted than others, including those with learning disabilities, socioeconomic challenges, and other underrepresented groups.

4. Inequities

As previously stated, students in low-income areas could be as far as seven months behind in their schoolwork, and this is attributed to the socioeconomic inequities and lack of resource access across the United States. This is especially disconcerting when it comes to STEM subjects that rely on consistency and a building upon prior knowledge. According to an article by E. Povich, teachers nationwide have faced concerns in proactively educating children via virtual situations. Specifically, many lower-school educators are apprehensive that virtual teaching impairs crucial and proactive learning, particularly in younger, neurodivergent students who require specific accommodations.

This, in turn, brings several social and educational inequalities because of how children may be simply unable to effectively learn at home, especially in earlier and critical stages of schooling. Another critical issue described by the author entails not all younger students who require parental assistance in online participation are able to receive this support, as their parents are working to provide for them during school hours.

This then contributes to a chain reaction, where tutors are in high demand and there are not enough people to support children that are trying to learn in already stressful conditions. Although some students are able to comfortably adapt in online circumstances, inadequate home conditions, a lack of parental support (for understandable reasons,) and people being concerned for their own healths causes a continuous divide in social/economic inequalities (Povich, 2021).

5. Modeling Methods for Effective Online Education

College students are among the first groups that effectively integrated virtual learning, even doing so pre-COVID as a secondary option for schooling. During and after the initial COVID outbreak, though, the need to increase and retain these options was obvious. College students in larger schools, perhaps because they are more mature or are able to make additional independent educational decisions, report fewer negative impacts and suggest they do not feel excluded because they are mixed into the mass of in person students. *Education Technology Magazine* reports, “Virtual learning gives students far more control over their own education,” allowing more chances to sit in on classes that would otherwise be full or to choose times that work for their schedule. In addition to brick-and-mortar university

institutions who offered these options, more online educational platforms such as Khan Academy, Udemy, and several others have sprung up, modeling themselves after traditional MOOCs (Massive Open Online Courses) that enable adults and children alike to take remedial courses or to work on a topic of interest towards certification or course credit.

With the flexibility of this model already in existence, schools catering to children began to follow suit, implementing “virtual schools” that offer public school asynchronously, synchronously or in a blended model. A state-wide example in the authors’ home state is Florida Virtual School (FLVS) which continues to thrive even after schools opened back up due to flexibility with scheduling and individualized student course options (EdTech, 2021).

MIT defines asynchronous (or on-demand) learning as a model where students complete work on their own time, at their own pace. Conversely, synchronous learning is when students meet on a schedule, live with the teachers, and it can be in the classroom or virtually. Some benefits to asynchronous learning, as stated by MIT, include that students can pause the lesson and take the time that they need to understand the key concepts (MITx, 2021). *EduFlow* states that synchronous learning is beneficial because the students get immediate

Mental Health.

Our primary measures of mental health are assessments of depression using the CES-D scale. **Fig. 3** shows average CES-D scores for the spring 2019 and spring 2020 cohorts. We present the baseline measures taken at the beginning of the semester (February), the midsemester measures taken in March (spring 2020 cohort only), and the end-of-semester measures taken in April.

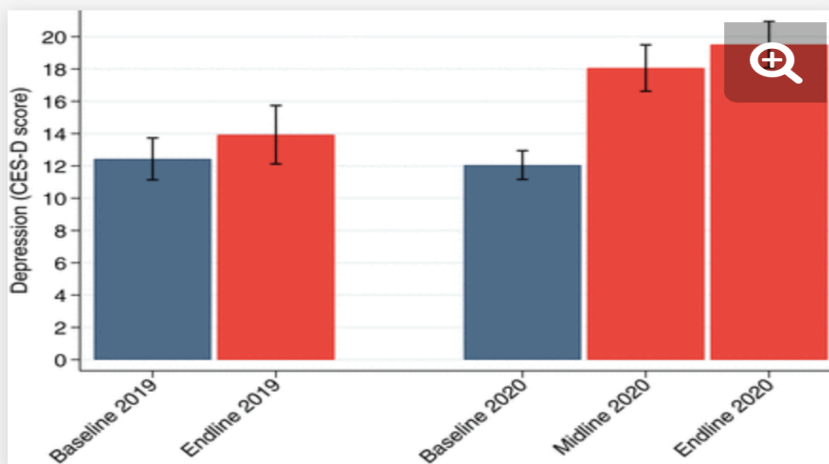


Fig. 3. [Download figure](#) | [Open in new tab](#) | [Download powerpoint](#)

Depression. The figures show the average CES-D score at the beginning (February), middle (March 2020 only), and end (April) of the semester during the spring 2019 and spring 2020 terms. Bars indicate 95% confidence intervals.

Fig. 4. Depression reported by students during COVID. Image Courtesy of pnas.org.

feedback from their instructors, and they note it immediately (Wind, 2020). Students also develop a “community” when they all join in real time (in-person or not) where they interact with each other and the teacher, even though they are through a screen. For STEM subjects, this interaction is essential and may go a long way for online students’ retention and comprehension.

6. Interactive Teaching Methods to Increase STEM Engagement

Virtual learning can pose disadvantages that can, if not handled properly, be detrimental to student comprehension and retention. Teachers and students alike have had to adjust their teaching/learning methods, while the methods of different classes have also had to change in unique ways. At the advent of COVID, school districts were forced to find a way to effectively deliver information to students quarantined in their homes. Resources were utilized around the country to supply all students with technology that would allow education to continue in troubling times. Teachers had to change their methods quickly, some having to adapt to the new technology which made their jobs more difficult as learning curves varied. Zoom became a household word, and, in fact, has gone from being a proper noun but a verb to describe the most common online meeting format. Other schools used costless options such as Google, well-known for its collaboration abilities and their model for Google Classrooms. Google Meets, for example, has been one of the main methods used by public schools during COVID as a way to increase collaboration and effective teaching delivery.

One feature in particular emerged as a necessity for bringing a sense of the traditional classroom online: Breakout rooms. Breakout rooms are often used in synchronous online tutorials and are particularly helpful in student engagement, allowing pupils to collaborate in smaller group settings (Chandler, 2016). While they became most popular in Zoom formats, most online platforms have similar applications that allow for such collaboration. Students report feeling engaged in breakout room activities, and more confident speaking in a small group. While these kinds of platforms can be especially effective when working with blended classrooms (some students are face-to-face and others are joining virtually), these kinds of platforms work especially well for providing consistency and even allowing for growth for after-school STEM clubs who are forced to pivot due to the educational model shift. One such example is the Wolfpack CubeSat Development Team, who, prior to COVID, met at one location but have since expanded to do real-world aerospace discussions/teaching sessions with students around the country.

7. The Wolfpack CubeSat Development Team as a STEM model

The WCDT is very active in real-world aerospace work. For example, the team, at various points over the years, has completed several High-Altitude Balloon (HAB) missions as a way to excite younger children. While HABs are not satellites, they stimulate a CubeSat-building environment and offer lessons such as monitoring data packages that apply to the larger content. These launches are more accessible for younger students, and are also a more affordable option for educators.

From these beginnings, WCDT students began to dream bigger, and developed mission proposals, which led the first batch of students to design, test, and build the WeissSat-1 after it was chosen by NASA’s CubeSat Launch Initiative. The WeissSat-1 was a mission to validate extremophile bacteria in the vacuum of space, leading the WCDT to be one of the first middle-school teams in the world to launch a CubeSat. Since then, the WCDT was selected once more to build and launch the CapSat-1, whose mission is to test lithium-ion polymer batteries as a novel energy source; this mission is expected to be launched aboard a Falcon-9 in 2022. At the time of this writing, three new CSLI proposals were submitted to NASA for selection and represented work done both online and collaboratively.

The WCDT received several letters of support from industry and the community at large in addition to financial sponsorship commitments to facilitate the building of their satellite if selected. They also held their Preliminary Design Review (PDR) with engineers at Kennedy Space Center as required by the NASA CSLI program. In addition to real-world aerospace work, the WCDT performs extensive STEM outreach to younger students, and avid space enthusiasts around the country.

State Collaboration. The WCDT also mentors students in other states such as Hawaii, Nebraska, and North Carolina. Webinars were conducted weekly where team members collaborated across a tri-state area on a variety of projects, from CubeSat proposals to future joint projects. The NC team flew to KSC for the Preliminary Design Review (PDR), where engineers reviewed our CubeSat proposals and left feedback. It was very interesting to meet them in-person, and everyone learned from that experience. The teams in the different states were all going to launch CubeSats along with the WCDT. The CubeSats were all going to transmit data on their experiments to the others, and to the other states’ ground stations. However, only one state’s CubeSat got selected, the FoxSat-1. Students in Hawaii joined and listened in on WCDT webinars, and contributed their own, helpful ideas to further discussions. The supervisor from the team in Hawaii even taught the members of the WCDT about themselves and about other topics relating to future missions.

Elementary Outreach. Members of the WCDT have the opportunity to mentor younger students. Many

members have done so, and enjoy teaching the younger children what they think they will need to know for a future in STEM. In 2019-2020, an activity and a coloring book were made to teach young children about CubeSats and general STEM terminology. Students distributed these to the community by attending STEM Fests at local universities and museums. In June of 2021, students and mentors began to discuss possibilities of publishing an aerospace-themed children's book to educate both students and educators about topics commonly discussed amongst the WCDT.

Specifically, the two main points emphasized in this publication were to include the International Space Station and the Falcon 9's Vertical Landings. Although these sections were initially planned to be separate books, students further collaborated and decided that merging these topics would be most appropriate. Preliminary to formatting, each student thoroughly researched the topics using digital resources and primary accounts to then translate this content into student-friendly descriptions and visuals. Implementing real-world experiential learning opportunities, students were selected to take on "jobs" around their passions: either writing, editing, or illustrating. This reinforced the idea of collaboration and mentorship.

Team leads and the group members met virtually to advise and discuss content to create a children's picture book that would engage a reader of any age. Finally, team leads met with their adult mentors who assisted with editing and formatting. Finally, in December of 2021, their efforts resulted in a published product on Amazon entitled *Let's Go to Space!* By creating this piece, writers and illustrators saw the value in utilizing digital software programs (including Zoom and Google Docs) to best collaborate and discuss the project, even when meeting in person was not tangible.

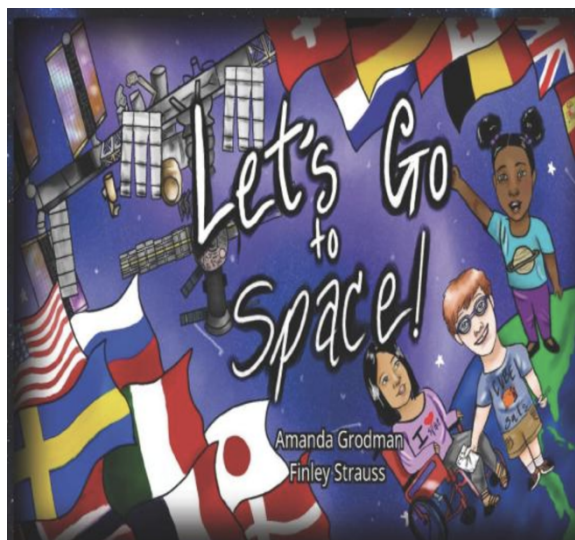


Fig. 5. *New Outreach Book*. Image courtesy of A. Grodman

Conferences/Publications. Before the 2020 global pandemic, WCDT students participated in several public or selected events, including the Humans to Mars Summit, the International Astronautical Congress (IAC), and even presented live at NASA Headquarters and the White House Office of Science and Technology Policy. Fortunately, with the availability of digital resources, Wolfpack members were still able to connect to people worldwide, even during the onset of COVID-19. Although the pandemic is still present on both a regional and global level, WCDT students continue to receive conference, banquet, and competition opportunities as more places are able to host eager participants. One notable event that the team has participated in was the 2021 International Astronautical Congress in Dubai, where students presented aerospace-based content to others from around the globe. Furthermore, other notable events the team has participated in is StemFest, Engineer It, and other programs offered by the American Institute of Aeronautics and Astronautics (AIAA). The team attends local, national, and international events, so members get many opportunities to learn how to write academic papers that are published.



Fig. 6. *Wolfpack students at the 2021 IAC in Dubai*. Image courtesy S. Mikati

8. Gamification, Coopetition, and Pivoting in the Education

Coopetition is a term usually used in the business world as a way to increase competition through collaboration-- hence the portmanteau. This method has been shown to also increase academic interest by not only making learning a "game," but also by creating healthy competition. Several online applications are now able to be utilized both as an individual and as classroom options, and are particularly good for reviewing content and assessing overall understanding. One method is online games such as Quizizz, Kahoot, and Quizlet. Teachers ask various questions and students answer all the questions in the form of an engaging game, often incorporating points and beneficial "power-ups" when questions are answered correctly. According to the

Murray State News, Quizlet is one of the best websites for students to stay engaged in what they are learning (Dillard, 2018). Quizlet allows students to either create their own content or use other users' creations to self-assess their familiarity in a topic of their choice. Kahoot is similar to Quizlet, according to Texas Tech University, who notes that Kahoot is highly motivational to collectively engage students in learning because of the competitive yet friendly learning aspects. Quizizz is also a great program for students and is flexible and easy to use according to the Institute of Arts Integration and STEAM (Hodson, 2020).



Fig. 7. Quizlet logo. Image courtesy of Google

The WCDT is an example of a group that existed prior to COVID, but that actually grew due to online opportunities based in large part due to the collaborative nature of expanding on student STEM passions through competitions and team-building. Working this way allows students who have a love of different kinds of STEM to work together to create larger products.

9. Conclusion

Now that the educational system has been forced to change its approach to effective education, models are not likely to return solely to the traditional models of the past. Embracing technology and the choice between physical versus in-person education will allow students, teachers, and parents around the country to take ownership in their own learning; however, more must be done to ensure coursework that is most often traditionally taught from a lecture/textbook perspective such as STEM content is not lost. Educators and educational leaders can implement online techniques by utilizing the interactive methods and by finding ways to pivot and engage the online learner of today. Teachers can engage younger learners through games, books, and other applications that are fun to younger children. Moreover, engaging students through collaborative teams such as the WCDT will allow real-world learning to occur, which is the real key to helping solidify the STEM pipeline of the future.

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Title: Translanguaging Nests: Building Community for Future Bilingual Teachers & Educational Advocates

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Translanguaging Nests: Building Community for Future Bilingual Teachers & Educational Advocates

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Abstract

Due to recent legislation expanding the educational opportunities available to emergent bilinguals in California, the need for bilingual K-12 programs has increased significantly and so has the need for bilingual teachers. This paper explores the role of translanguaging in an undergraduate program aimed at preparing students who are heritage speakers of Spanish and interested in becoming bilingual teachers or education advocates. This four-course, quarter-long program is part of a larger initiative to promote interdisciplinary cohort models that leverage the downtown Sacramento campus at the University of California, Davis. The courses focus on opportunities to further develop Spanish language skills, learn about education policy analysis and policies impacting bilingual communities, engage in internship opportunities in bilingual classrooms while learning about school systems, and develop knowledge about Latin American history. Pedagogical practices across courses honor both Spanish and English by all four Latinx, bilingual instructors. A major goal of the program is to create a language nest in which translanguaging is encouraged. The first cohort completed the first iteration of the program in Spring 2021. We describe translanguaging practices and their role in creating a sense of community and opportunities to focus on the academic content without being limited by language.

Keywords: Bilingual teachers, translanguaging, heritage speakers

Introduction

The passage of California's Proposition 58, now known as the *California Education for a Global Economy Initiative*, in late 2016 lifted previous restrictions on educational programs for the state's emergent bilinguals. This has led to an increased demand for various models of bilingual K-12 programs. Consequently, a number of recent studies have called attention to the current critical shortage of bilingual teachers both in California and across the country, (Ruiz, Jimenez-Silva, & Smith, 2021; Kennedy, 2020; Wiggan et al., 2020).

This paper describes the role of translanguaging in an undergraduate program aimed at preparing students who are interested in becoming bilingual teachers or education advocates. This four-course program, called “Advocating for California’s Multilingual Students”, is part of a larger initiative at the University of California, Davis, to promote interdisciplinary cohort models planned around a complex topic that leverages the downtown Sacramento campus location. Crucially, this includes an internship component, collaborating with public or private community partners to foster hands-on learning in a setting relevant to the featured field of study.

Our program combines all-Latinx faculty from linguistics and education to offer a series of courses in the areas of Spanish, history, and culture, policy, and education, with a related internship in a local bilingual elementary school. The goals of the program are to 1) increase the pipeline of bilingual teachers, 2) demystify Spanish in the school context and boost prospective teachers’ confidence, 3) immerse teachers in innovative bilingual classrooms, and 4) leverage community resources to foster life-long connections between educators and the public. However, what was most important to us was to present ourselves as a unified network of support to guide students through this challenging but rewarding field, embodying a cluster of communal, linguistic and professional practice.

Our first cohort completed the program in spring of 2021 and were a group of 15 bilingual Latinx students between the ages of 18 and 25 years old, who either were born in the US or immigrated at a young age. In their applications for acceptance into the program, they reported a strong desire to reconnect with their ancestral culture, reclaim the language of their childhood, and help other students who are now traversing their educational journey in a language that is different from their parents.

Heritage speakers

About one-fifth of the U.S. population lives in a home where a language other than English is spoken. Most of these are considered *heritage speakers*, having grown up exposed to a minority language through family or caregivers, and going on to attain different degrees of bilingualism throughout their lifespan, ranging from comfortably communicating in English and the heritage language in various modalities and registers, to being mostly English dominant with some understanding of the heritage language (Valdes, 2001). In the case of Spanish, approximately 40 million Latinx fall into this category (U.S. Census Bureau, 2019). However, research shows that proficiency in the language diminishes rapidly and practically disappears by the third generation, driven primarily by the lack of opportunities to meaningfully engage with a variety of interlocutors and in diverse contexts. Like other heritage speakers, Spanish heritage speakers are typically schooled solely in English, due to the dearth of bilingual programs in the public-school system. This, coupled with factors such as the absence of extended family and other linguistically-relevant social networks, as well as negative attitudes about bilingualism, can result in very limited use of Spanish over time, and stronger conversational than literacy skills in the language. In the case of heritage speakers of Spanish, it is not until college that many of our students get to experience the language in a classroom setting for the first time.

It is in these institutional environments that students are often confronted with feelings of linguistic insecurity, both as English and as Spanish users, realizing that the language or variety that they speak is very different from the one that is taught or expected in the academic context. In this sense, students are responding to and perpetuating the societal indexing assigned to English vis-a-vis the heritage language, and to the standard variety vis-a-vis the vernacular (Sánchez-Muñoz, 2016). In other words, they have internalized the idea that only one of those

options (English as opposed to Spanish, or standard as opposed to vernacular Spanish) is more valuable than the other “to get ahead in this world” (205).

Having first been labeled English learners as children, and then being told that they speak a stigmatized form of Spanish, can contribute to a sense of bilingualism as a deficit, focused on what students are lacking in relation to an idealized English monolingual on one hand, and the prescriptive traditions stemming from Spanish language academies on the other (García, 1993). Even though heritage speakers may resort to English and Spanish on a daily basis and, as members of a bilingual community may exhibit language practices that are eclectic and differ from monolingual norms, pervasive deficit ideologies can increase linguistic shame and the perception that bilingualism is a “mish-mash” of two languages, or that it is characterized by random errors typical of language learners. Indeed, the term *Spanglish* is commonly used to suggest a haphazard combination of Spanish and English performed by those who lack proficiency in either language, and associated with the uneducated and poor (Zentella, 2016). However, while the Spanish our students bring may present some features that are characteristic of language contact, in this case, contact with English, due to the circumstances in which its speakers are immersed, it largely conforms to the popular variety of Spanish spoken in the U.S. (Otheguy & Stern, 2010).

Translanguaging

The most obvious scenario by which bilinguals are noticed and identified is when they use more than one language in conversation, commonly labeled code-switching. Contrary to popular belief, this alternation does not consist of an arbitrary combination of words where ‘anything goes’; rather, it is rule-governed and requires a high level of proficiency in both

Spanish and English. As a marker of identity and accommodation towards their interlocutor, it is a resource by which U.S. bilinguals perform or “do” their bilingualism (Parra, 2016).

While the concept of code-switching by definition emphasizes the distinction between separate linguistic systems that co-exist in the bilingual mind, *translanguaging* is a concept that supports a heteroglossic view of language. The term translanguaging sees bilingualism as valuable and allows bilinguals “to act naturally, using language as they do at home and in their communities” (MacSwan, 2017, p. 171). Languages are not defined as being geographically bounded or separate structures, but rather as dynamic systems that are used to communicate and construct knowledge (Canagarajah, 2011). Hence, bilinguals, like monolinguals, have “one linguistic repertoire from which they select features strategically to communicate effectively”, depending on the context or interlocutor (Garcia, 2012, p. 1). Translanguaging is “the deployment of a speaker’s full linguistic repertoire without regard for watchful adherence to the socially and politically defined boundaries of named (and usually national and state) languages” (Otheguy et. al, 2015, p. 283). Therefore, it is of utmost importance to better understand the linguistic practices of students who are interested in becoming bilingual teachers and to encourage and support their use of languages other than English in the classroom.

Teacher Education

The importance of translanguaging among teachers and educational contexts has been highlighted by several scholars. Canagarajah (2011) pointed out that translanguaging occurs naturally when students and teachers “use their entire linguistic repertoire strategically to teach and learn” (p. 408). Translanguaging pedagogies challenge monoglossic language ideologies and support the integration of bilingualism in the classroom (Garcia, 2014). For example, Creese and Balckledge (2010) explored the relationship between translanguaging practices and identities. In

a study carried out in the UK, the authors observed that bilingual teachers and students used a translanguaging approach to connect with one another and create knowledge.

Translanguaging has also been defined as a *pedagogical stance* taken by teachers and students to draw on their linguistic and semiotic resources as they teach and learn language as well as content in the classroom (Mazak, 2017; Mazak & Herbas Donoso, 2015). Thus, the way teachers view language and how they engage in language practices with their students is important because it has the potential of creating valuable learning opportunities and a sense of linguistic and cultural identity.

Previous research has focused on preparing pre-service teachers for culturally and linguistically diverse students (e.g., Athanases et al., 2013; Achinstein & Athanases, 2013). Some studies have explored the relationships between translanguaging and higher education (see Mazak & Carroll, 2017 for a collection of recent works). However, little research has been conducted on translanguaging and bilingual teacher education.

In a recent qualitative study conducted at the Texas-Mexico border, Musanti and Rodriguez (2017) explored the translanguaging practices of pre-service bilingual teachers in academic writing. The authors found that the teachers used their English language skills to aid their Spanish writing. For example, student teachers used Spanish to express ideas read from English resources, they also made use of cognates (e.g. *modelar/model*), translated English acronyms into Spanish, and even coined some terms (e.g., *cuarteles* for *quarters*). Thus, pre-service teachers used their linguistic repertoires to construct knowledge and strengthen their bilingual competencies. Musanti and Rodriguez also highlighted the importance of preparing teacher candidates to use formal, academic language registers (2017, p. 51).

Translanguaging in Our Classroom

The program we developed relies on translanguaging not only as an individual practice by instructors and students, but it is also weaved into the way that the courses interact, built into the structure of individual assignments, and a key element of the internship component. As our whole nineteen-person team was bilingual (students and instructors), translanguaging was a dynamic we actively encouraged. Faculty frequently switched between Spanish and English in spontaneous conversation but also as a pedagogical resource to clarify words or concepts. Students were also free to translanguage during oral contributions, small group discussions, and written assignments. However, regardless of the language they chose to use, students were not judged and their switches were not explicitly noted or mentioned, so as to promote linguistic behaviors that were as spontaneous as possible.

As a pedagogical device, translanguaging eliminates the perceived barrier between the languages and instead leverages their interconnectedness to enhance learning and expand students' opportunities for exploring the content areas. Our program's focus on translanguaging is evident not only in individual assignments, but also in how the different courses, instructors, and modalities provide multiple spaces for students to "language" in a way that is relevant to each particular communicative situation. In this sense, our curriculum aligns with García's (2013) five modes of pedagogical translanguaging:

- a. Translation: assignments are completed in one language for one course, and then translated into the other for a different course.
- b. Dialogue: interactions between students in small groups, or with instructors in the classroom or during office hours, were conducted in both languages.

- c. Exploration: students' personal drafts, lecture/discussion notes, and journals took place in both languages.
- d. Reading: students read a combination of Spanish and English language articles, and attended presentations in both languages.
- e. Writing: students were asked to write some assignments in Spanish, some in English, and some were done in both languages, without the need to translate.

In this way, translanguaging is not only manifested in the interplay between English and Spanish, but also in the sequencing of modalities and registers in the assignments and lesson plans. This inter- and intra-linguistic interaction goes hand in hand with Kagan and Carreira's (2015) *From-to principles*, where learners' strengths serve as a "bridge" or "springboard", as Carreira (2016, p. 130) explains, to address gaps in their knowledge. Just like students may resort to one language to fill for the other, they can also leverage one skill or variety in order to scaffold their acquisition of others. For example, students' listening and speaking skills, which are generally the ones in which heritage speakers feel most comfortable, can be used as the first step in assignments, as a way to lead students into developing their reading and writing skills, which are typically weaker in the heritage language. Similarly, the home variety can serve as a path to venture into more academic registers and the acquisition of specialized vocabulary.

Translanguaging Nests

Language nest programs can be traced to the 1980s in New Zealand and the revitalization and promotion of the Māori language (King, 2001). Language nests are designed as safe spaces to engage in linguistic and cultural practices, often with the goal of language revitalization among young members of the community with guidance from elders in the community. Several

successful language nests have been documented in the literature. For example, the Seneca Language Nest program established in the 1990s has seen numerous iterations, from in-home programs serving just a handful of young children to larger school-based programs (Taylor, 2021). In Hawaii, language revitalization efforts that include language nests have led to 5,000-7,000 new speakers of Hawaiian (Brenzinger & Heinrich, 2013). Borgia and Dowdy (2010) report some common problems encountered by language nest programs, including low enrollment, difficulty avoiding the use of English, and lack of trained nest teachers and staff.

Jimenez-Silva, Ruiz, & Smith (2021b) have examined undergraduate programs that have successfully created language nests for future bilingual teachers. Their survey study of 214 California Mini-Corps tutors highlighted the power of engaging with mentors who were also bilingual and engaged in translanguaging practices during Mini-Corps sessions. Tutors felt seen, heard, and understood by mentors who shared similar cultural and linguistic backgrounds.

Through our program, we seek to create a language nest for undergraduate students considering a career as a bilingual teacher. Faculty in the program are all bilingual and have similar socio-economic, linguistic and cultural backgrounds as the students enrolled in the program. As faculty, we all engage in translanguaging practices and have developed and adapted courses to interact bilingually within our language nest.

Courses and Assignments

In this section, we describe each of the courses and the role of translanguaging in the curriculum.

Course 1: Spanish for Educators

Drawing on key readings on the field of bilingualism and sociolinguistics, this course provides an overview of the current debates surrounding Spanish speakers in the U.S. educational context. The goal is for students to reflect on issues of language variation and multilingual education, and discuss the various socio-linguistic challenges facing heritage speakers, with the hope that this increased awareness will allow them to display greater empathy and more effective mentorship in their future interactions with young bilinguals.

Course 2: Introduction to Education Policy Analysis

This course leverages the program's proximity to the state's capital. It was written to introduce students to the field of education policy analysis. The course was rooted in socio-political and socio-cultural theoretical and conceptual frameworks and delved into the effects of language policies on educational communities. A number of guest speakers were invited to present and engage in conversation about issues of language policy. Guest speakers included a City Councilwoman and current classroom bilingual teacher who shared her experiences navigating language policies in alternative high school settings, a member of the California Office of Legislative Office who led students through the bill drafting procedure and a director of institutional research at a community college who shared the importance of disaggregating data when informing policy. Guest speakers often translanguaged during the presentation and was encouraged throughout the course conversations. Two of the three major course assignments were written and presented in Spanish.

Course 3: Introduction to Schools

The third course, Introduction to Schools, addressed issues impacting bilingual K-12 programs including school organization and finance, school reform movements, and developed students' skills for observing, aiding, and tutoring and schools. The course was taught by a teacher leader who assisted with internship placements within one of the premier bilingual programs in the area. She guided students through 30-hour internships over the course of the quarter. Both English and Spanish were used throughout the course and in their internship assignments.

Course 4: Introduction to Latin American Culture

One of the requirements for earning a bilingual authorization in California is passing a state-required exam focused on Latin American history and culture. This course was designed to provide students with the background needed to successfully pass this exam. Course topics included learning Latin American geography, major Latin American political movements, and presentations by local authors and artists from the Latinx community. Furthermore, we provided funds to support registration for the exam. As with the other courses, a safe space was created for translanguaging and modeled by the instructor.

Joint assignments: Translanguaging between the courses

Having a cohort model allowed us to design assignments that could be addressed from more than one perspective, complementing the strengths of each instructor and leveraging students' bilingualism. Below, we describe four such assignments that were completed collaboratively between two courses, in chronological order.

Letter of introduction (Course 1 and 3). In this assignment, students were asked to introduce themselves to their internship class (Course 3) by writing a letter describing their educational and linguistic journey. As a first step, however, we discussed the topic orally in Spanish during Course 1. The instructor introduced herself and her early experiences related to upbringing and schooling, and then asked the students to discuss their own journey in small groups, where they were encouraged to use whatever language or combination they felt most comfortable with. While in the small groups, students also took notes with ideas or keywords that would help them complete the assignment later, and consulted with each other on the use of specific terminology. Next, they generated individual documents in Spanish and shared this version with a classmate as a form of peer review and incorporated their feedback. The final step was to translate the letter into English and present it to their internship classroom.

Interview questions (Course 1 and 3). In this assignment, students were asked to come up with a list of interview questions that they would later pose to a panel of veteran teachers and administrators at the school (Course 3). Because this took place a couple of weeks into the term, students had a little more background into the structure of the school and the educational model it followed. Also, at this point, they were somewhat familiar with the expectations of the program and their internship responsibilities. The objective was for students to utilize that information as a starting point and dig deeper into areas of their interest. We started by placing them in small groups and asking them to discuss a few topics, which would help them generate a list of questions in Spanish. Each student contributed three questions and shared them with the group. Then, they reviewed the questions together and decided on a final list. The last step was to translate the questions into English and use them for the interview.

Podcast (Course 1 and 2). For this assignment, students were asked to choose an educational policy issue (Course 2) and structure a conversation around that topic in a podcast format. The objective was for students to learn about and discuss a theme relevant to bilingual education, and dissect it so that it is understandable to the general public. Students had already spent some time researching the topic in English, and this assignment was a way to help them process the information, talk about it in Spanish, and create a product that could potentially serve to introduce critical issues in education to an audience that could benefit from it but who may not be familiar with the details, such as students' parents. In small groups, students brainstormed ideas and completed the template illustrated in Figure 4. In groups of three, one student performed the role of host, and the other two played the part of guests, each presenting a different point of view on the topic. Finally, they recorded the podcast in Spanish.

Pecha Kucha (Course 1 and 2). The Pecha Kucha is a popular presentation format that involves creating a fast-paced presentation with twenty simple slides, each lasting twenty seconds. This format has been found to lead to more engaging presentations (Beyer, 2011). The objective is for students to be able to summarize a particular topic both visually (the slides contain mostly pictures and few words) and orally (the presenter can only speak for a set number of seconds per slide). In this assignment, students were asked to develop the topic that they had already explored in the podcast into a Pecha Kucha format. Because additional material had been covered in Course 2 since the podcast, students had to make sure to incorporate this new information into the Pecha Kucha. The readings were in English, so students had to negotiate how to translate the relevant information into Spanish. In small groups, they discussed how to

break down their topic into twenty parts, and took notes in a shared document. Next, students generated a script of the presentation in Spanish and practiced reading it in under twenty seconds per slide.

Concluding remarks

In this paper we posit translanguaging as a pedagogical approach to teach minoritized students who are interested in becoming bilingual teachers or education advocates. We report on a program composed of all-Latinx faculty and students, that leverages translanguaging to promote language maintenance, build a sense of belonging, and model inclusive and empathetic interactions between teachers and students. We propose the concept of *translanguaging nest* as a way to capture the interconnectedness between language and community, and how letting go of linguistic barriers gives students the freedom to engage with the material bilingually, create a shared experience of learning, and foster confidence in their future professional endeavors.

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Presentation Summary: **What can we learn from the Classrooms That Never Closed: Stories of Essential Early Childhood Practitioners Working Throughout the 2020 Covid-19**

Pandemic

During the 2020 Covid-19 global crisis, many of us observed several moments to applaud doctors, nurses and anyone defined as a frontline worker. However, early childhood teachers and staff members were rarely recognized as essential or frontline workers during these moments, despite many of them continuing to teach in-person during the pandemic to serve families that needed support.

Recognizing the need for quality childcare during the pandemic, some private early childhood sites remained open with permission from state agencies to support parents that could not work from home, such as nurses, grocery store employees and doctors. As a result of these essential early childhood faculty and staff continuing to work in-person, many children of frontline workers were able to remain in their childcare facilities throughout the pandemic, but not without their own challenges.

Meet the Teachers.

- Jordynn is in her fifth year working at an early childhood center not far from her home.
- Eden is in her ninth year as an early childhood practitioner and seventh year at her current location.
- Gabrielle is in her third year as an assistant teacher but also works as a head teacher for infants and three-year-old children.
- Danielle is a first-year assistant teacher for the “woddlers” room (children starting to walk and toddlers).
- Sarah is in her 11th year at her childcare site and received a promotion to head teacher four years ago.

All five educators offer valuable glimpses into their classrooms and given the unprecedented nature of the pandemic; it is critical to listen to these voices.

Essential Educators.

The experiences of these early childhood practitioners provided an opportunity to understand concepts that could possibly impact future early childhood educational practices. After collecting data and working with five teachers throughout the pandemic, three main themes emerged from the practitioners' account of their experiences and are shared throughout this presentation.

Support for families.

The most common theme shared was the need to support families throughout the pandemic and to consider how childcare providers can help families when dealing with critical conditions and emergencies. The teachers shared how they had to increase their observational skills to capture the verbal and non-verbal cues of stress from children and families and be in position to provide support with an enhanced level of patience. One teacher shared how stressful the face masks were initially and described children's negative reactions to seeing their teachers and other staff members greet them in "big, scary masks", as she described. Wearing masks throughout the day was new for everyone and the teachers started to recognize how stressful this became for families.

I learned quickly that I needed to listen more intently to the needs of the parents since this was a traumatizing event for them too. I made sure to pay closer attention and observe some of the children's behaviors changing and their families. That's when I started to put it all together. I learned so much but one of the most important lessons was to listen closely and watch carefully so that you can support your families during traumatizing events and any challenges they're facing. The face masks alone were really hard in the beginning because the kids were so afraid of us. They're young, so they didn't realize it was us and that was hard for us all (Florenze).

The need for consistent clear communication

Throughout the 2020 global pandemic, there were rapid, daily, and sometimes hourly adjustments, instructions and announcements that were communicated throughout the day from various sources. As a result, the early childhood sites in this study found it necessary to learn and implement alternative methods for communicating with families consistently to decrease anxiety.

For example, all the teachers described the need to revise daily protocols and logs to provide families with the latest information to ensure the safety of each child. Information that many sites typically communicated to families at the end of the day during pick up, was now shared throughout the day and included data such as their child's temperature from lunchtime.

I had this overwhelming moment when I was able to almost interpret what this parent needed. I noticed *every* day at 1pm, she'd call us frantic, checking to make sure her son wasn't spiking a fever. One day, when she came to pick him up, I just asked her; why at that moment each day did she call. I found out her shift in the Covid unit at the hospital starts at 12:30 pm and after 30 minutes there, she would just get scared and want to check on him. She was scared about bringing it [COVID-19] home to him; especially because she was on the front lines. That's when I asked my director could we increase our daily communication to parents to include midday reports ... and we did (Gabrielle).

This teacher went on to describe the relief their families felt after her center increased their communication with parents. However, several steps occurred to elicit this type of change:

1. The teacher observed a change in the parent's demeanor and followed up with the parent.
2. The teacher made a recommendation to the site director based on the information she learned from the parent.
3. The site director made adjustments based on the teacher's suggestion.

Every step is significant to implementing changes in learning environments that support families and help ease the anxiety of everyone involved during challenging and stressful situations.

Caring for the early childhood practitioners.

All the educators in this study acknowledged their own personal fears, stress, and anxiety during the 2020 pandemic. The expectation to be present, emotionally, and physically each day for the children and families they served became overwhelming for some teachers. In addition, there were some teachers that described the fear of using a sick day, because they knew it would interfere with the ability to remain open for the families. However, some of the teachers also started to learn how their own anxiety and stress could impact their ability to teach effectively and provide quality care.

I had to remind myself constantly to take it one day at a time. I had to give myself grace in everything and say, 'there's a pandemic'. But even if it wasn't a pandemic, I need to just take it step by step. I think a lot of teachers make this mistake and that's why there is so much teacher burnout. I wish we had more advice on how to deal with the stress so that we can be there for our kids when they need us. Maybe we need to learn methods for helping ourselves remove the stress of each day too (Danielle).

As a result of this study and working through the pandemic, some of the teachers were able to discuss with their site directors the need to introduce opportunities and protocols for staff to learn how to relieve stress and manage their own mental health as well. Increasing these services for educators will help them support and care for themselves; which is critical to their ability to provide positive care and support for children and families during a crisis or emergency.

Conclusion.

Longitudinal studies on this topic may be premature, however, a framework emerged from this work and refining the concepts to implement across various grade levels is the next step for expanding this research. This can be considered new territory for early childhood education, yet an area that we need to understand to prepare our future and current educators for teaching through a crisis.

While the educators in this study were not included in the initial public applause and admiration dedicated to frontline workers during the global pandemic, their stories will help prepare future generations of educators, as we continue to learn from the classrooms that never closed.

The Psychological Impact of Separating Immigrant Children from their Families

A Report to the House Oversight Subcommittee on Civil Rights and Civil Liberties



**Dedicated to the Honorable Elijah E. Cummings,
Champion for Children**



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“As Chairman of the Committee on Oversight and Reform, I am working to hold the Administration accountable for the inhumane treatment of children and fighting to make sure families are reunited as soon as possible.” *Elijah E. Cummings*



December 9, 2019

To: United States House Oversight Subcommittee on Civil Rights and Civil Liberties
Democratic Members: Jamie Raskin, Carolyn Maloney, William Clay, Debbie Wasserman Schultz, Robin Kelly, Alexandria Ocasio-Cortez, Ayanna Pressley, Eleanor Norton and
Republican Members: Chip Roy, Thomas Massie, Mark Meadows, Jody Hice, Michael Cloud, Carol Miller

From: Deborah Stiles, Licensed Psychologist, Professor of Applied Educational Psychology and School Psychology, Director of Intercultural Research Center, Fellow in Human Rights and Humanitarian Studies, Webster University

Re: The psychological impact of separating immigrant children from their families: A report to the U.S. House Oversight Subcommittee on Civil Rights and Civil Liberties

On July 19, 2019, I wrote to Elijah E. Cummings, Chairman Committee on Oversight and Reform about the staff report, *Child Separations by the Trump Administration*. This 31 page report presented ten case studies of children, whose ages ranged from four months to sixteen years and it discussed the legal, economic, political, and medical aspects of child separations, but omitted the psychological impact of child separations.

Since that time, Webster University graduate students and I have been writing our own report for you, *The Psychological Impact of Separating Immigrant Children from their Families*. We don't know about the legal, economic, political, and medical aspects of child separations, but we do know about child and adolescent psychology. In our report, we share our knowledge.

In *The Psychological Impact of Separating Immigrant Children from their Families*, we discuss each of the ten case studies and explain the typical characteristics of children who are 4 months, 8 months, 19 months, 8 years, 9 years, 12 years, 13 years, 15 years, 16 years. The graduate students and I have studied psychology and so we elaborate on each of the ten case studies in the staff report and explain relevant psychological theories that apply to each of the case studies. We want you to understand from a psychological perspective the serious damage that was inflicted on each of these ten children, their families, and their communities. Also, we added two case studies of migrant children who were featured in the news and later died. You already learned about 19 month old Mariee when her mother Yazmin Juarez testified before your committee. You likely read about 8-year-old Felipe Gomez Alonzo in the news because he died in U.S. custody on Christmas in 2018.

This report is for you – the fourteen members of the Oversight Subcommittee on Civil Rights and Civil Liberties. We note that most of you have university degrees in law or political science. (Robin Kelly is the exception; she has a Ph.D. in Political Science, but she also has degrees in psychology and counseling).

We have tried to make our report as understandable and meaningful as possible. We made a decision to use a “storytelling” approach to each of the ten case studies. We want you to feel that you know each of the ten children, including how their lives might have been affected by the administration’s immigration policies and what the future might hold for them.

With words, graphics, and photographs we try to illustrate the psychological harm caused “when our own government rips vulnerable children, toddlers, and even infants from the arms of their mothers and fathers with no plans to reunite them” (using the words of Elijah Cummings).

Elijah Cummings often said, “Our children are the living messages we send to a future we will never see.” For these reasons, we explain psychological stage theories, development trajectories, risk and resilience, international children’s rights, and ecological systems theories, which show the connections between your jobs as lawmakers and the lives of individual children.

We want our report to be meaningful and motivating for you. We believe that if you can understand the nature and extent of the psychological harm caused to each of the ten children described in the staff report, *Child Separations by the Trump Administration*, then you can propose policies and legislation that will be beneficial to migrant children and adolescents. The Democratic and Republican members of the Oversight Subcommittee on Civil Rights and Civil Liberties can work effectively and happily together because concern about the well-being of children is not a partisan issue.

The Psychological Impact of Separating Immigrant Children from their Families

Elijah Cummings who commissioned the report, *Child Separations by the Trump Administration*, is a hero to all who study child and adolescent psychology. He was an advocate for children, their rights and their needs. Marian Wright Edelman paid tribute to Elijah Cummings after his death on October 17, 2019, "Our nation's children lost a great champion in Congress when Representative Elijah Cummings (D-MD) passed away October 17th. He correctly and often called children our living messages to a future we will never see and stood up for their needs throughout his 23 years in Congress. He fought for quality child health care, education, and clean air and water and loudly denounced our cruel policy of separating children from parents at the border and caging them."

For the reasons mentioned above, our collaborative project, 'The Psychological Impact of Separating Immigrant Children from their Families', is dedicated to him.



screen shot <https://www.youtube.com/watch?v=9xVRXWpweBY>, 12/2/2019

The story of his childhood is an inspiration for us because most of us have personal experiences working with children and youth in schools. In elementary school Elijah Cummings was inappropriately labeled as a special education student. In school he felt like a "caged bird" and as though he was "locked in."

In an interview with *60 Minutes* in January 2019, Elijah Cummings talked with Steve Kroft about his childhood. In the interview, Cummings explained that a guidance counselor and some elementary school educators discouraged him from having high hopes about his future. When he was about 10, he told the guidance counselor that he wanted to become a lawyer. The counselor replied, "Who do you think you are?"

Not everyone in his elementary school discouraged Elijah Cummings. It pleases us that a sixth-grade teacher took a personal interest in him, tutored him, and then sent

him to the local library to study even more. We would describe this teacher who promoted resilience and hope in this low-income, “at-risk” child as a “turnaround teacher.” Later Cummings graduated with honors from Howard University and earned a law degree from the University of Maryland School of Law.

Elijah Cummings benefitted from having positive adult influences during his childhood. In the interview with *60 Minutes*, Elijah Cummings told Steve Kroft that his parents instilled in him a belief that he could accomplish many things in his life. “My mom and dad, although they may not have had a lot of formal education, they were two of the most brilliant people that I know. They were always looking for teaching opportunities.”

Throughout his adult life, Elijah Cummings sought to be a positive influence on children. For example, in 2012, he paid a visit to Hillcrest Elementary School in Catonsville, Maryland. There he spoke with fifteen special education students and told them about the difficulties he faced as a child. He told them about how his classmates would beat him up solely because he was enrolled in the school's special education program. He talked with the children about the essays they each had written on the importance of perseverance. According to a newspaper article about the school visit, “The students then presented Cummings with a perseverance book, which contained each of their stories. Cummings read the first page aloud and had tears in his eyes as he finished” (Brian Conlin, May 22, 2012).

Elijah Cummings’s life is a testament to the importance of taking time to encourage, support, understand, listen to, and advocate for children. We as a team wish to continue these sentiments, as we address the experiences of immigrant children currently taking place in this country.

Our collaborative project is based on months of research on child development, adolescent psychology, attachment, trauma, migration, Honduras, Guatemala, and the Roma people. We conducted interviews with three persons who have direct experience with the impact of child separations by the Trump administration. We prepared charts, graphs, and other visual materials including photographs. Our collaborative project includes this report to the Oversight Subcommittee on Civil Rights and Civil Liberties and a symposium we will present in February 2020 at the conference of the Society for Cross-Cultural Research/American Psychological Association International Psychology Division.

Please know that we did our best to explain the psychological impact of separating children from their families. We do not know what you know. We have a limited knowledge of government agencies and we have not studied political science and the law as they pertain to child separation. We are only beginning to learn about Customs & Border Protection (CBP), Office of Refugee Resettlement (ORR), Immigration and Customs Enforcement (ICE), Department of Homeland Security (DHS), Department of Health and Human Services (DHHS) *Flores* Settlement Agreement and the Trafficking and the Victims Protection Reauthorization Act (TVPRA). In our report,

we are sharing our knowledge of child and adolescent psychology.



Pictured above are twelve of the thirteen authors of *The Psychological Impact of Separating Children from their Families*. For the photograph on the left, seated (left to right) are Brittany Weaver, Niharika Murthyraju, Kelly Ann Brown, and Keary Ritchie; standing (left to right) are Anna Werner, Xavior Baker, Dr. Deborah Stiles, Kaori Chaki, and Vanja Bajer. For the photograph on the right, seated (left to right) are Marie-France Castor and Brittany Steinbrueck; standing is Tierra Metcalfe. Not pictured is Erica Suchland.

Our report, *The Psychological Impact of Separating Children from their Families* includes three papers: “The ‘Tender Age’ Children”, “The ‘Teenage’ Children”, and “Traumatic Stress and Healing.” In the grey boxes on top of each of the ten cases studies, we directly quote from your staff report, *Child Separations by the Trump Administration*.

The “Tender Age” Children

The U.S. Department of Health and Human Services (HHS) uses the term “tender age” to describe the younger children in their custody. “Tender age”, which is not a term in the field of developmental psychology, refers to children under 12 or 13. The term has been criticized for being “newspeak” or “double speak” because there is nothing at all tender about how immigrant children are most often treated by Customs and Border Patrol (CBP) or the Office of Refugee Resettlement (ORR).

In the staff report, *Child Separations by the Trump Administration*, the five case studies of children 4 months, 8 months, 19 months, 8 years, and 9 years would be considered “tender age.”

4 Month Old Boy: Constantin Mutu, a 4-month-old infant was separated from his family at the border and reunited with them at the age of 9 months. Due to the separations, he had not met the developmental milestones of a typical, same age child. Constantin has been severely traumatized. Constantin now lives with his biological family and hopefully will experience the stability and security needed to help his development.

8 Month Old Boy: An 8-month-old child from Honduras spent almost half of his life without a primary caregiver which will impact his emotional, cognitive, and social development. This infant has been severely traumatized. Because both father and son have been deported, there is a small possibility that they have been reunited. Perhaps this child now has a primary caregiver who can have a positive impact on his development.

19 Month Old Boy: A Honduran toddler was separated from his father in Texas and placed in foster care. It is unclear if he has been reunited with his father as of now, but in regards to his development, it is possible that he may suffer long term detrimental effects to his motor and language skills as a result of this traumatic experience.

8-Year-Old Boy: An eight-year-old boy from Guatemala was separated from his father for a year and transferred to numerous CBP and ORR facilities. As of now, we know his father has been deported, and any plans to reunite the now nine-year-old boy are unknown. It could be inferred, however, that the impact of these traumatic experiences could have long term effects on his abilities to form positive relationships, trust adults, socialize with his peers, enjoy life, and feel at peace with himself.

9-Year-Old Boy: A nine-year-old from Honduras was separated from his father, then transferred to two ICE facilities within a span of two months, before being finally reunited with his father. The two are currently reported “removed” from the Port Isabel Service Processing Center; their current location is unknown.

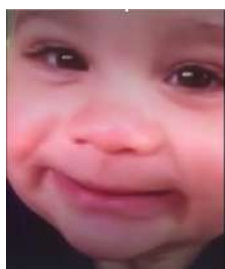
Note: In the grey boxes are your descriptions of each of the ten case studies.

Case study from the Staff Report, *Child Separations by the Trump Administration*

Boy 4 months: Records confirm that the youngest child separated from his parents was a four-month-old baby boy from Romania who was separated from his 35-year-old father upon arrival in February 2018. The father was deported in early June 2018 from an ICE detention facility in south Texas.



We know more about the case study of the four month old infant in the report, *Child Separations by the Trump Administration* than we know about any other child presented. This is the only case study in the report in which we know the child's name (Constantin Mutu). Furthermore, we can see videos of Constantin online and learn about his early development.



Screenshots, <https://youtu.be/QhRHczLKMks>, 11/24/2019

Psychoanalyst and renowned child development theorist Erik Erikson described the first stage of child development as Trust versus Mistrust. According to Erikson, the mother helps the infant to gain a sense of trust. "The first demonstration of social trust in the baby is the ease of its feeding, the depth of his sleep, the relaxation of his bowels" (Erikson, 1950, p. 247). Writing in 1950, Erikson wrote, "Mothers create a sense of trust in their children by that kind of administration which in its quality combines sensitive care of the baby's individual needs and a firm sense of personal trustworthiness within the trusted framework" (p. 249).

The writings of Erik Erikson are convoluted and not at all easy to understand. And yet, his ideas appear in almost every psychology textbook and are still applicable today. Erikson's theory of human development is termed psychosocial development. "Psychosocial" means that we don't only consider the individual's psyche, but also their social context. The first stage in the baby's life concerns "social trust" and the baby demonstrates this by ease of its feeding and depth of his sleep. Bruce Perry, a child psychiatrist and contemporary child development theorist, would agree with Erikson in that Perry believes that "the infant's world is defined by his or her caregivers" and if the caregivers are absent, the infant is harmed.

Although we know more about Constantin than any other child in the report, *Child Separations by the Trump Administration*, we don't know that much about his first four months of life. Child development textbooks explain that the typical 4 month old child would be beginning to develop a sense of the permanence of objects. The infant discovers that objects and persons continue to exist even when they cannot be seen, heard, or touched. Psychologist Jean Piaget first made this discovery when he

observed his own children and he developed the term “object permanence” to describe this phenomenon. Piaget considered object permanence to be one of the infant’s most important accomplishments. Although Piaget suggested that babies don’t have a full understanding of the permanence of objects until around 18 months, more recent research suggests that these understandings occur earlier. Piaget also noticed that infants look for hidden objects in the wrong places. Child development textbook author Usha Goswami describes a number of theories related to these phenomena including ‘immature object knowledge’ and ‘brain immaturity’.

Goswami also writes about children’s “attachment”, another early childhood concept which is related to object permanence and the need for security. She states, “The consistency of early attachment experiences is critical for the development of children’s ‘internal working models’ (psychological expectations) of their value as a person who is deserving of love and support from others.” Constantin’s early attachment began to develop with his mother at 4 months when he began to seek her out. We do not know as to whether Constantin developed a secure attachment with his mother. Even if he did, this attachment was disrupted by the Trump Administration. Constantin Mutu was 4 months old when he was separated from his parents by the Trump Administration’s Zero Tolerance Policy (ZTP). Psychologists don’t know how much a four-month-old baby understands, but most believe that a four month old would notice things like changes in their surroundings and the people who are around them.

Constantin may have been affected by the impact of separation not once, but twice with the initial separation of Constantin from his parents and the subsequent separation of Constantin from his foster mother. Constantin was reunited with his biological family after five months of separation. Psychologists believe that at the age of 7 months, mother-child attachment development is established. It is possible that Constantin developed an attachment with his foster mother that was, again, traumatizing when his was reunited with his family. At 9 to 12 months, separation anxiety begins to present itself; this would be approximately the age at which Constantin would have been reunited with his birth parents. Constantin was four months when he was separated from his birth parents and nine months when he was reunited with his birth parents. This means he spent more than half of his young life with his foster mother.

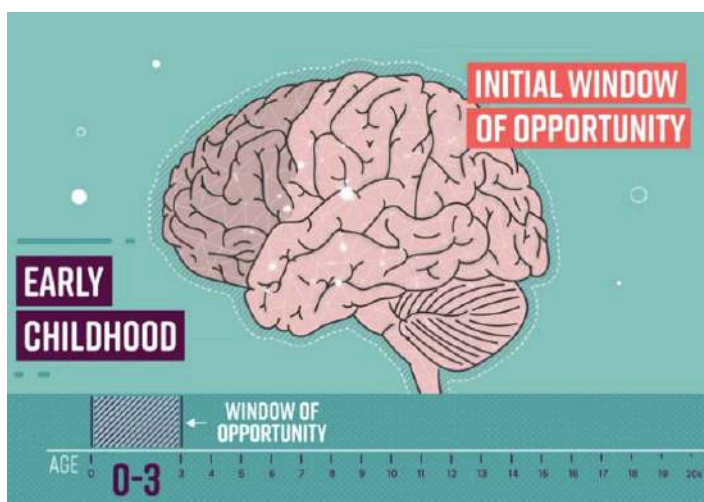
The psychological trauma experienced by Constantin may have originated not only from his separation from family but might have also been compounded by the trauma of a transient lifestyle in Romania and the reunification of Constantin to his biological family. We know that when reunited with his birth mother, Constantin was inconsolable. The *New York Times* reported that his mother was unable to get him to eat. At 18 months of age, Constantin was unable to walk on his own or speak. A typically developing child would begin to speak and walk at around 12 months.

While with his foster family, Constantin was exposed to a typical, middle class American lifestyle. However, back in Romania, Constantin’s family was poor. Romania has the highest child poverty rate in the European Union and 74% of Roma

communities have severe income problems. A UNICEF report on *The Status of the Roma in Romania* explains that more than 40% of children suffer from severe malnourishment. In addition, Roma children have limited access to early education services and Roma families are discriminated against, making it hard to find employment and decent housing. This stark contrast of lifestyles in the United States versus Romania could have impacted Constantin's development psychologically.

Developmental psychologist, researcher, and theorist Ann Masten has studied risk and resilience as well as vulnerability and opportunity in children. She defines risk as an elevated probability of an undesirable outcome and resilience as positive adaptation in the face of risk or adversity. Separation and attachment theory suggest that Constantin could be "at risk" for profound learning and mental health difficulties later in life.

Early childhood is the "initial window of opportunity" which is important due to rapid brain development and the development of adaptive systems (Masten, 2015). Early childhood is also the "window of vulnerability" because "toxic stress" exposure in early childhood negatively alters brain development (Masten and Kalstabakken, 2018). Constantin's brain development will be affected by the traumatic stress of family separation.



screen shot from documentary short film, <https://www.youtube.com/watch?v=-1FRco3Bjyk>

A clear indication that disruption via separation has been traumatic for Constantin is seen by his lack of attainment of developmental milestones. Masten has studied the developmental trajectories of children's lives in regards to psychological resilience and psychopathology; she discovered that early experiences influence later development. Similarly, researchers such as Leventhal, Brooks-Gunn, and colleagues suggest that the psychological impact of this trauma could go much further as Constantin ages. Furthermore, Elijah Cummings (not a psychologist) said that the trauma inflicted by child separations could "impact these children for the rest of their lives."

Crawford and colleagues (2009) found that extended separations of a month or more before age 5 can predict increased symptoms of borderline personality disorder in early adolescence to middle adulthood. Other psychological effects of childhood separation during the infant years could include depression, anxiety, and mood disorders. Because Constantin already displays some signs of being impacted by separation anxiety, he is at an even greater risk for mental health concerns in the future.

Another study explains how separation could impact Constantin's ability to read and progress academically in the future due to the psychological trauma he has experienced. It reads, "For example, Leventhal and Brooks-Gunn (2000) found that any separation from a primary caregiver (defined as hospitalizations lasting one week or more, or a change of primary caregiver between assessment waves) was negatively associated with children's reading achievement by age 8" (Howard, et al., p.4). Due to his separation from caregivers twice during his infant years, Constantin was likely unable to use the adults in his life as models for developing language in a typical manner as he was still determining with whom he should develop a bond of trust. This could impact his ability to acquire early literacy skills in the future and, therefore, his ability to read efficiently.

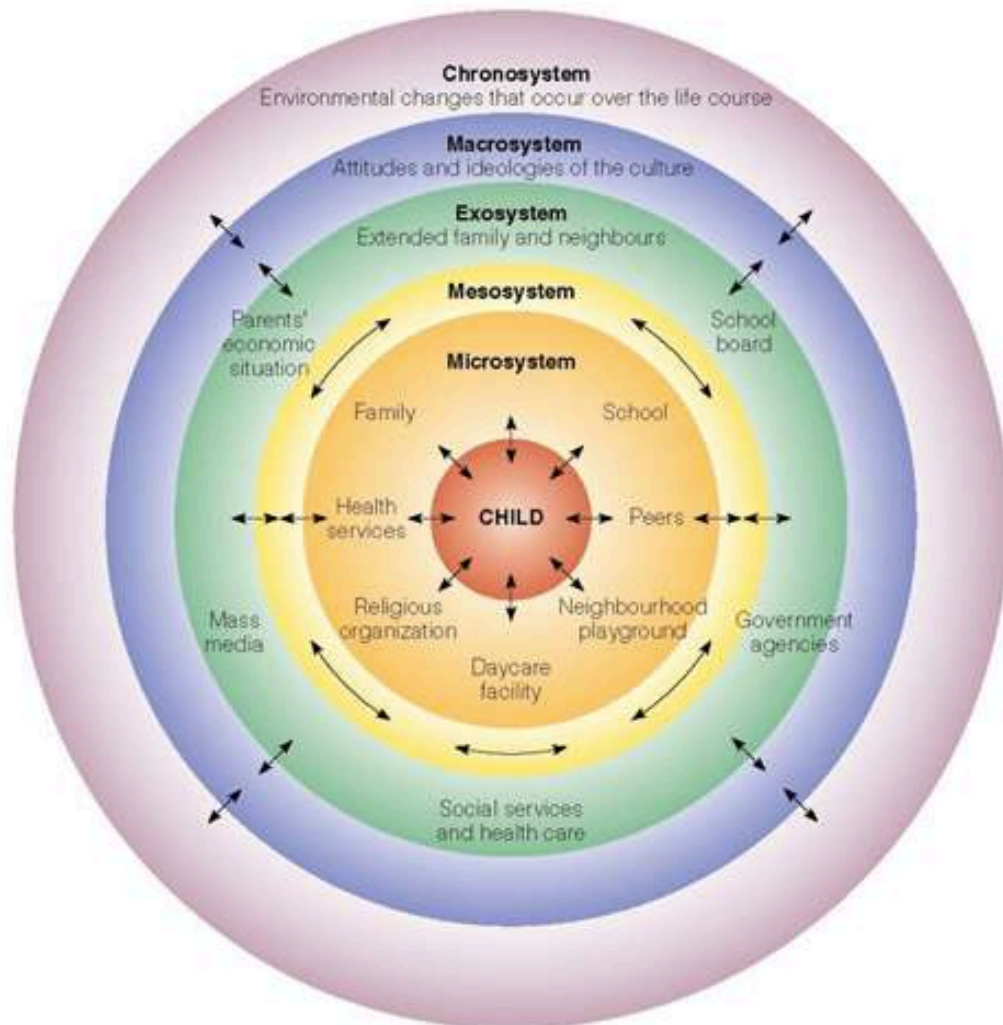
Most psychological theories, such as Piaget's theory or the theories of Brooks-Gunn and her colleagues, focus on the individual child, but Bronfenbrenner's ecological systems theory (explained below) and Erikson's psychosocial development theory describe how the larger society can influence the psychological development of individual children. Constantin's early development was influenced by prejudice and discrimination against Roma people (and also by the Trump Administration's Zero Tolerance Policy).

Urie Bronfenbrenner's ecological systems theory describes how events experienced by one individual may impact others around them even a generation later. This starts with changes in what is called the Chronosystem, the ecological system defined by changes that take place over time in an individual's environment. These changes will affect the Macrosystem, the ecological system composed of the widest distribution of people, cultural, and social values that could affect the individual.

(Note: As lawmakers, you are part of the Macrosystem).

In the case of Constantin, the prejudice against Roma individuals provides a good example of Chronosystem effects. The current state of prejudice has a great impact of public perception and social behaviors. These behaviors would then affect the Exosystem, the ecological system composed of the indirect environment that could still impact the individual. In relation to Constantin, this would include places of work, school, etc., in the community in which people of Roma descent would have directly experienced persecution. Next, these changes would affect the Mesosystem, the ecological system composed of direct connection to the individual. Direct experiences of persecution by Constantin's parents, that would have directly affected their quality of life would be a good example of this. According to Bronfenbrenner's theory, this gradual

trickling of traumatic changes may very well effect Constantin in both the present, and the foreseeable future, even without his direct involvement.



Bronfenbrenner's bio-ecological systems theory
<https://misstarver.wordpress.com/2016/09/29/teachers-teaching-culture-community/>

Clearly, Constantin has experienced multiple and cumulative risks in his young life. The Trump Administration's child separation policies harmed him. Perhaps Constantin has even experienced multigenerational trauma. However, Ann Masten would remind us of that even in high risk conditions, there are "fundamental, universal human adaptation systems; these systems keep development on course and also facilitate recovery from adversity." Now that he is living in Romania, he is surrounded by family; perhaps his life can finally stabilize. Masten reminds us that "parents nurture and protect children in the early decades of their development" and that even in dire circumstances there can be "positive adaptation in the face of risk or adversity."

Case study from the Staff Report, *Child Separations by the Trump Administration*

Boy 8 months: This baby from Honduras was eight months old when he arrived with his father in May 2018 at the border in Texas. He was taken away from his father and sent to an ORR facility in Arizona, where he remained for nearly six months, before being released for departure from the United States in November. During this time, his father was transported to an ICE detention facility near the border, transferred days later to another ICE detention facility in Texas, transferred to a third ICE detention facility nearly a month later, and then deported in July. At the time of his release, the baby had spent nearly half of his life without his parents, in the custody of the Trump Administration. It is unclear whether the child and father have been reunited.

Swiss psychologist Jean Piaget published his first scientific paper about an albino sparrow in 1906 when he was a boy of just ten years. In 1918 he earned his doctoral degree in natural sciences. Then he spent two years at the Sorbonne studying psychology and philosophy. He became interested in developmental psychology when he was working on a French version of an intelligence test and he became fascinated with children's thought processes and discovered similarities in the thinking of children of the same age. Later Piaget made important discoveries through carefully observing his own children. Piaget remarked, "When I myself had children I was better able to understand the role of action in the development of intelligence." Through his observations, he realized that "thought predates speech" and that the infant is thinking before he has language. In his four stage theory of cognitive development, Piaget describes the first stage of a child's life as the sensorimotor intelligence stage.

Piaget claims that cognitive development proceeds through a series of four stages. Many psychological theories of development were developed from a Eurocentric or American perspective and so there are limitations to these theories. Although not all stages of child development are culturally universal, the sensorimotor stage is universal; the cognitive development of all infants in all times and places, begins with discovering the world through the senses and movement.

Erik Erikson was born in 1902 and he also developed a stage theory in which he expanded Sigmund Freud's five stages of psychosexual development to eight stages of psychosocial development. In Erikson's theory, children in all cultures go through the same sequence of stages, but each culture has its own way of guiding a child's behavior at each age. The main psychosocial task of infancy is to acquire a favorable ratio of trust to mistrust. Infants with an attitude of trust believe that their mother will feed them when they're hungry and comfort them when they are sad or scared.

Erikson first published *Childhood and Society* in 1950. Obviously, Piaget's and Erikson's theories are decades old, but they are still relevant to our understanding of child psychology in 2019. The table on this page describes the cognitive and psychosocial stages that apply to the "Tender Age" in *Child Separations by the Trump Administration*.

Erikson's and Piaget's Stages Associated with the Tender Age Children		
Case Study	Psychosocial Development	Cognitive Development
Boy 4 months Romania	Trust vs. Mistrust	Sensorimotor
Boy 8 months Honduras	Trust vs. Mistrust	Sensorimotor
Boy 19 months Honduras	Autonomy vs. Shame and Doubt	Sensorimotor to Preoperational
Boy 8 years Guatemala	Industry vs. Inferiority	Concrete Operational
Boy 9 years Honduras	Industry vs. Inferiority	Concrete Operational

The 8 month old infant from Honduras is figuring out how to coordinate his motor skills with his senses. Typically, a baby of this age can see a toy from across the room, decide that they want it, crawl over to get it, and then pick it up. An infant of this age will probably put the toy in his mouth. For the infant, the “world is essentially a thing to be sucked” according to Piaget.

Early in life, the baby discovers that objects in the world are stable, an idea known as object permanence. Prior to 8 months, most babies don't have a strong sense of object permanence, meaning they don't realize that objects or people are always around. The 8 month old baby discovers that his caregiver still exists even when not around. Around 8 months of age, infants may start to develop “separation anxiety” when separated from their primary caregivers. The anxiety is a result of babies being able to differentiate themselves from their caregivers; the anxiety is a normal, healthy response from the baby. However, the infant's separation anxiety is often difficult for the caregiver to cope with because the caregiver loves the infant so much. Sometimes the infant will communicate that he is not at all happy and he will cry, protest, and become “clingy” when the caregiver leaves.

According to trauma specialists, Christine Ludy-Dodson and Bruce Perry, “attachment is defined as an enduring relationship with a specific person that is characterized by soothing, comfort, pleasure, and safety. It also includes feelings of intense distress when faced with the loss, or threat of loss, of this person.” The most important attachment relationship for the infant is the relationship with his mother or other primary caregiver. The importance of healthy attachment has been extensively studied.

“Research in this area has identified four categories of attachment: secure, insecure-resistant, insecure-avoidant, and insecure-disorganized/disoriented. Securely attached children feel a consistent, responsive, and supportive relation to their mothers even during times of significant stress. Children with insecure attachment feel inconsistent, punishing, unresponsive emotions from their caregivers and feel threatened during times of stress.... A solid and healthy attachment with a primary caregiver predicts healthy relationships with others as the child grows... [Insecure attachment puts the young child] at greater risk for developing maladaptive

behaviors and mental health problems as they get older.”

The 8 month old infant from Honduras “spent nearly half of his life without his parents, in the custody of the Trump Administration” and therefore he did not have an opportunity to develop a secure attachment with a primary caregiver at a critical stage of development.

“There are critical periods during which bonding experiences ***must be present*** for the brain systems responsible for attachment to develop normally. These critical periods appear to be in the first year of life and are related to the capacity of the infant and caregiver to develop a positive interactive relationship” (Perry, 2013, p. 3).

It appears that the developmental trajectory of this boy’s life was altered by the Trump Administration’s policy of child separations. According to child psychiatrist Bruce Perry, “Altered caregiving and a prolonged stress response will alter the development of the infant. The major mediators of emotional, cognitive and social environment and, therefore, learning during infancy are the primary caregivers. Development in all domains can be disrupted if these primary relationships are compromised” (Perry, 2014, p. 12)

One of the last sentences of the case study of the 8 month old child from Honduras is, “It is unclear whether the child and father have been reunited.” Even if this infant boy is reunited with his father after their long separation, the consequences for this 8 month old boy could still be devastating because he experienced severe, prolonged trauma very early in his life. We don’t know if positive experiences later in life can repair the damage that was done during infancy, but we do know that nurturing, patience, and appropriate interventions help. If the father and his child are reunited, they will need intensive psychotherapy and long-term support.

Case study from the Staff Report, *Child Separations by the Trump Administration*

Boy 19 months: This toddler from Honduras was 19 months old when he arrived with his father in April 2018 at the border in Texas. He was taken away from his father and transported to foster care in New York, where he remained for five and a half months before being released to a sponsor in October 2018. During this time, the child's father was sent to various ICE detention facilities in Texas, New Jersey, and New York, before being released in October. It is unclear whether the child and father have been reunited.

According to Erikson, each stage of life confronts the person with a unique developmental task that is a crisis that must be resolved either favorably or unfavorably. Erikson's stage of psychosocial development that corresponds with 19 months old is called Autonomy vs. Shame and Doubt (1-3 years) and the "crisis" for the 19 month old baby is either developing a sense of independence and autonomy versus developing a sense of shame and doubt. According to Piaget, a 19 month old would be between the Sensorimotor Stage and the Preoperational Stage when words and images reflect symbolic thinking. According to Elkind, the toddler is ambulatory and "stairs have a magnet like attraction for him, and he loves to crawl up them without assistance and to bump down them all on his own... The child's sense of space is such that he now knows where his treasured toys are and can retrieve them from where they are usually kept... He can use language to express his wants and desires... [And he] distinguishes between 'you' and 'me' and makes claims about things being 'Mine'. He is also making progress towards greater self-control by imitating adult actions (pp. 73-74)." All of these accomplishments are examples of healthy development; the toddler is demonstrating a sense of autonomy and preoperational thinking.

In the box below is description of another 19 month old child named Mariee. The House Committee on Oversight and Reform heard about Mariee's life from her mother.

Testimony from the Mother of a 19 Month Old Toddler

In July of 2019, the House Committee on Oversight and Reform heard testimony from Yazmin Juarez. Ms. Juarez and her daughter Mariee fled Guatemala, seeking asylum in the United States. Ms. Juarez stated, "We made this journey because we feared for our lives in Guatemala. The trip was dangerous, but I was more afraid of what might happen to us if we stayed. So, we came to America, where I hoped to build a better, safer life for us."

During her testimony, Mariee's mother spoke about her 19 month old daughter Mariee, a bright beautiful girl and "normal giggly baby", a baby we imagine was quite similar to Elkind's description of the typical toddler who loves to crawl up stairs and "bump down them all on [her] own." We imagine that Yazmin Juarez's "little angel" Mariee might be doing exactly what Elkind described as characteristic of toddlers who are one and a half years old. According to Elkind, Mariee would be "making progress"

in language, understanding, and self-concept and meeting “the many demands for socialization that are visited upon all young children.”



Screen shot, <https://www.youtube.com/watch?v=SqDH5Pkzoio>, 11/27/2019

Mariee’s mother decided to testify before the Oversight and Reform Committee because her daughter died and “the world should know what happened” to her due to the neglect, mistreatment, and horrendous conditions in ICE detention. According to her mother, “Mariee was a healthy baby girl when she was taken into ICE custody. But 20 days later, she left with a life-threatening infection. Small children do not belong in detention. But if ICE’s detention center had just been safe and sanitary – and if they’d given my daughter the proper medical care she needed – Mariee might still be here today.”

The 19 month old toddler from Guatemala was traveling with her mother. The 19 month old toddler from Honduras was traveling with his father. Neither of these children could be protected by their parents. The life of Mariee, the 19 month old girl from Guatemala, tragically ended. The life of the 19 month old toddler from Honduras was altered when he was separated from his father in Texas. His developmental trajectory was damaged when he was taken away from his father and put into foster care in New York for five and a half months.

Studies show that attachment plays a vital role in child development. Attachment is the emotional bond between the infant and the caregiver that allows the infant to get their needs met and allows for the child to explore learn and develop. (Bowlby, 1973). We don’t know what happens next for this 19 month old boy, who was suddenly separated from his caregiver. The report, *Child Separations by the Trump Administration*, states, “It is unclear whether the child and father have been reunited.” Even if he was reunited with his father, there could still be psychological damage from being separated for five and a half months and then transferred over from foster care to a sponsor. “Mental health conditions such as trauma and PTSD can prevent the parent from being able to engage with their child, resulting in behavioral and emotional difficulties for children once reunified with parent, even post-reunification” according to de la Peña and her colleagues (2019, p. 158).

The article by de la Peña and colleagues summarizes the damage that is being done by the Trump Administration's policies, "Vast scientific evidence suggests separation from parents is among the most impactful traumatic experiences that a child can have... For the children separated at the border, the adverse effects are exacerbated by the frightening, sudden, chaotic, or prolonged character of the separation, as well as by the uncertainty and ambiguity of what happened to their parents" (2019, p. 156).

We don't know what the long-term effects of the Zero Tolerance Policy will be on children and families. "Because there is no recent precedent comparable to the conditions and circumstances by which children and parents were systematically separated at the border by our current administration, no research exists that can fully elucidate the effects it may have on these children" (2019, p.156).

We don't know for certain what the long term negative effects might be for the Honduran toddler who was separated from his father. We do know that the next experiences for this young child should have been growth in motor, intellectual, and language activities. He would likely enjoy the "rhythmic pattern and musical qualities" of language and song. Feeling secure in his relationships with his parents, he would become more autonomous and independent and show a greater interest in children his own age.

Due to the family separation, this young boy would have difficulty achieving these next developmental milestones.

The premigration difficulties persist in Guatemala and Honduras. Violence, inequity and poverty pervade in Guatemala and Honduras; the number of children and their parents seeking "safe haven" in the United States continues. In Central America, women and their children are subjected to discrimination, gender-based violence, and a lack of opportunities for education and employment. The U.S. is perceived to be safer and the 'land of opportunity.'

A UNHCR 2015 report, *Women on the Run* describes how "tens of thousands of women – travelling alone or together with their children or other family members – are fleeing a surging tide of violence in Central America... [In countries such as Honduras and Guatemala women] face a startling degree of violence that has a devastating impact on their daily lives. With no protection at home, women flee to protect themselves and their children from murder, extortion, and rape. (UNHCR, 2015, p. 4).

The family photograph below was taken by Dominic Bracco II; it is included in this report with his permission. The photo depicts Lizeth Cerros who is mourning her murdered husband, Darwin Franco, with her children. Franco was a community organizer who protested against income inequality and unfair land ownership in Honduras. Later she received another death threat.



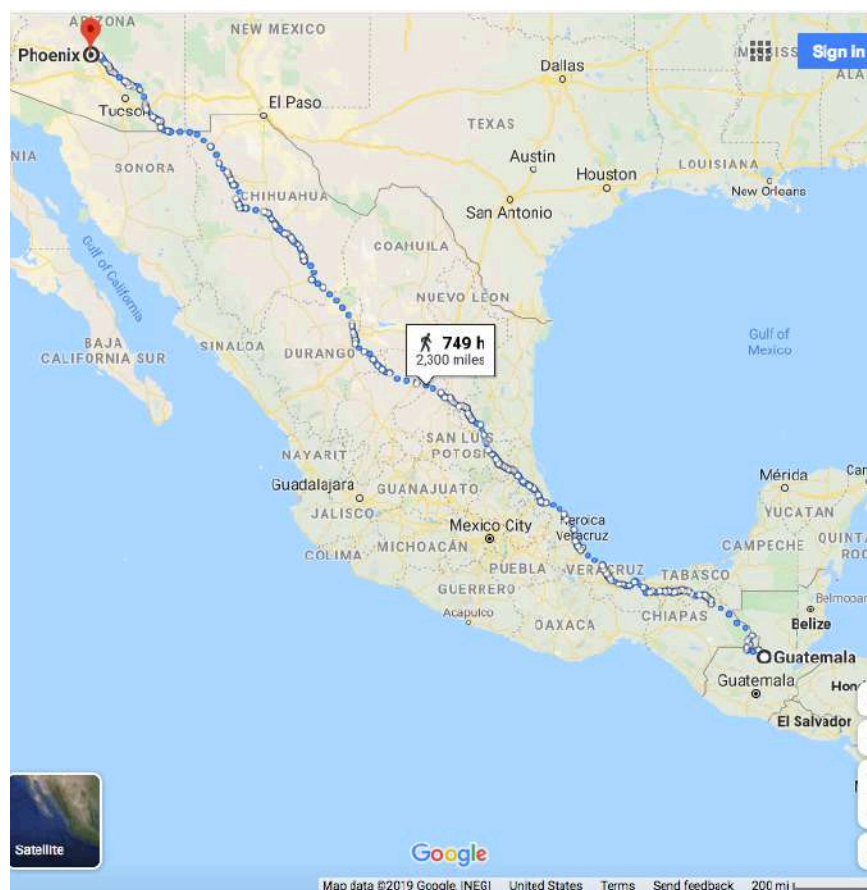
Dominic Bracco II

We can tell from the photo that the mother is gently comforting her daughters in the midst of her own profound grief and fear. Her husband is dead and she has received a death threat. The depiction of the young boy in the photograph is interesting. His older sisters are leaning on their mother, but he is set apart and looking at his mother and sisters. His body language almost seems to say, "I'm the man of the house now." These young children, like the case study of the 19 month old boy, are losing some of their childhood.

Case study from the Staff Report, *Child Separations by the Trump Administration*

Boy 8: This eight-year-old boy from Guatemala arrived with his father in May 2018 at the Arizona border. The boy was taken away from his father, held in CBP custody, and then transported to an ORR facility near Houston, Texas, where he remained for nearly eight months. He was transferred to the nearby Shiloh Treatment Center in January 2019, and as of May 2019, he was still there—one year after arriving at the border and being separated from his father. His father was deported in July 2018, two months after they arrived. Records do not indicate what steps the Administration has taken to reunify the father and the child, who is now nine years old.

According to developmental psychologist David Elkind, the 8-year-old boy begins to seek new experiences, appraise what happens, and becomes interested in the “whys” and reasons for events. The 8-year-old boy has more self-confidence than he did at age 6 or 7 and he is outgoing, curious, and social. Boys of this age are often physically active. They’re getting more coordinated physically; they enjoy jumping, skipping, chasing, and climbing trees. Play has been described as the “true cultural universal.” Having friends and playing with them is important for children’s development and many 8-year-old boys participate in team sports. This is the age when children are developing social perspective-taking skills and they want to spend more time with their age-mates than they did when they were younger. It is a long, difficult, and very dangerous journey from Guatemala to Arizona (2,272 miles). It is likely that this 8-year-old boy missed most of the fun, silly, active, playful times of his childhood.



In a book chapter, *Developmental Perspectives on Psychopathology in Children and Adolescents*, Masten and Kalstabakken (2018, p. 17) explain that “As children grow up, they interact with more systems directly through play, school, work, and social relationships, and they also take on greater agency in choosing interactions with specific individuals or systems.” This quotation applies directly to the 8-year-old boy from Guatemala because it describes what he should be doing: playing, going to school, doing his chores, and building friendships.

The typical 8-year-old boy enjoys and looks forward to going to school where he can see his friends. Most 8-year-old boys experience cognitive growth, especially reasoning about quantity and number. Learning mathematics is a sequential process that requires regular schooling and this boy missed out on many opportunities for learning mathematics. He also missed out on the opportunity to become a confident and independent reader.

According to Erik Erikson, the most important psychosocial task for a child this age is to develop a sense of industry and of being capable of productivity, especially at school. The danger at this age is that the child who is unsuccessful at school might develop a sense of inferiority or inadequacy. During the long 2,272 mile journey to Arizona, the 8-year-old boy from Guatemala missed a lot of school. He missed many opportunities for education and developing a sense of “industry” and competency.

In the box below is description of another 8-year-old boy from Guatemala named Felipe. This child may be known to the House Committee on Oversight and Reform because newspaper articles were written about him. Felipe was Mayan, as are the majority of immigrants coming from Guatemala to the United States. Mayans are fleeing Guatemala because they are discriminated there due to their language, cultural, and ethnic differences. For decades, paramilitary organizations in Guatemala killed thousands of Mayans.

An 8-year-old Migrant Boy from Guatemala Died in U.S. Government Custody

Felipe Gomez Alonzo, a Maya Chuj 8-year-old migrant boy from Guatemala became national news because he died in United States custody on Christmas night, December 25, 2018. According to the National Public Radio (NPR) transcript concerning this death, “Just a few weeks ago Jakelin Amei Rosmery Caal Maquín, a 7-year-old girl, also from Guatemala, died also after being apprehended by U.S. Customs and Border Protection.”

NPR reporter Monica Ortiz Uribe explained that the migrants she interviewed stayed on a filthy floor and didn't get enough to eat or drink... “Others told me they were in a windowless, crowded room where they couldn't tell whether it was day or night. I saw children still holding the paper-thin blankets that look like tinfoil given to them by the authorities. Some had no shoes. One boy was feverish and had to be picked up by an ambulance.”

Much about the circumstances of this 8-year-old boy's death on Christmas are not known. Maybe he died due to the overcrowded and cold conditions, poor nutrition, and the treatment he received in the facilities or maybe died as a result of the arduous journey from Guatemala to the United State.?

The Office of Inspector General in the Department of Homeland Security prepared a report, "Management Alert – DHS Needs to Address Dangerous Overcrowding and Prolonged Detention of Children and Adults in the Rio Grande Valley"; the report contains photographs of people wrapped in Mylar blankets (paper-thin blankets that look like tinfoil). It is evident children and mothers are suffering in very overcrowded conditions. Some people are standing because there is no place to lie down. This report was dated July 2, 2019 and publicly disseminated.



screen shot www.oig.dhs.gov July 2, 2019

We don't have much information about the 8-year-old boy in the report, *Child Separations by the Trump Administration*. One wonders about the intense psychological trauma probably experienced by this young boy from Guatemala who was separated from his father and protector, then held in U.S. Customs and Border Protection custody, and then transported to an Office of Refugee Resettlement facility, near Houston, Texas, and then sent to the nearby Shiloh Treatment Center.

In particular, the Shiloh Treatment Center has a very bad reputation for their treatment of children. According to an August 5, 2018 article from the *New York Times*, "in an ongoing class-action lawsuit, young migrants allege that staff members have engaged in physical and verbal abuse, forced them to take medication and, in some cases, overmedicated them." If true, these allegations are examples of what Elijah Cummings called, "government-sponsored child abuse."

Child psychologists and school psychologists use the *1989 United Nations (U.N.) Convention on the Rights of the Child* to guide their ethical practice. Many of the rights of the 8-year-old boy from Guatemala have been violated. The child was separated from his father and the boy was subjected to unsafe, unsanitary, and unhealthy conditions. Also, when his father was deported, the boy was deprived of his rights to live with his father (Article 9) and receive parental guidance from him (Article 5). Article 30 (Children of minorities/indigenous groups) is especially applicable to the case study of the eight-

year-old boy from Guatemala and to the four month old Roma boy. Guatemala is culturally and linguistically diverse and more than 23 languages are officially recognized there. The overwhelming majority of immigrants from Guatemala are indigenous. Mayan people in Guatemala and Roma people in Romania are persecuted.

The 8-year-old Boy from Guatemala Was Deprived of These Rights from the U.N. Convention on the Rights of the Child	
Article in <i>Convention on the Rights of the Child</i>	Description
Article 5 (Parental guidance)	Governments should respect the rights and responsibilities of families to direct and guide their children.
Article 9 (Separation from parents)	Children have the right to live with their parent(s), unless it is bad for them.
Article 19 (Protection from all forms of violence)	Children have the right to be protected from being hurt and mistreated, physically or mentally.
Article 22 (Refugee children)	Children have the right to special protection and help if they are refugees (if they have been forced to leave their home and live in another country).
Article 24 (Health and health services)	Children have the right to good quality health care, to safe drinking water, nutritious food, a clean and safe environment, and information to help them stay healthy.
Article 30 (Children of minorities/indigenous groups)	Minority or indigenous children have the right to learn about and practice their own culture, language and religion.

Child psychologists study how traumatic events can negatively impact the child's normal developmental trajectory; traumatic events can even impair children's future well-being and normal brain development. Children are more vulnerable than adults because their brains have not yet learned how to regulate the stress response. Children need a strong, positive relationship with at least one caring and competent adult. We note that, "Records do **not** indicate what steps the Administration has taken to reunify the father and the child, who is now nine years old."

What if this boy (now nine) was not reunited with his father? Where is the caring adult in the life of this boy? Has this child lost both of his parents? We know that a parental loss strongly influences the development of depressive symptoms. One can only hope that caring and competent adults become involved in his life. One can also hope that this boy is given opportunities to play, have fun, make friends, and go to school.

Case study from the Staff Report, *Child Separations by the Trump Administration*

Boy 9: In June of 2018, a nine-year-old boy from Honduras was separated from his father after migrating to the U.S border in Texas. Upon being apprehended, the child was physically separated from his father and then transferred to the Karnes Family Detention Center in South Texas. As far as we know, it was at this facility that he was reunited with his father. He spent two days at this facility before being transferred to the Port Isabel Service Processing Center, a secondary ICE detention facility in Texas. The nine-year-old boy and his father spent three weeks at this facility, and to our knowledge, they were both removed from the facility in mid-August.

Much about the current condition of this 9-year-old child and his father seems to be missing from this report. As it stands, whether or not the child and his father were transported back to some location in Honduras is unknown. The physical and mental health of the child and his father is also unknown, as well as whether or not the two had any familial or community connections in the U.S waiting for their arrival.

Developmental psychologists, such as David Elkind, have written about the characteristics of the nine-year-old. In regards to this boy, we can make a number of assertions about his probable state of mental, behavioral, and social-emotional development. According to Elkind (1994), at the age of nine, a child experiences an increase in maturity and a refinement of previously learned behaviors. During this stage, individual interests, hobbies, and fascinations about the world will consume the majority of a child's time. An increase in independence is also more prevalent here, along with the development of a sense of self that is separate from the child's parents. Higher criticism of the actions of non-parental adults can also develop at this stage, as well as the ability to accept blame and responsibility.

At school, the social-emotional expectations for children who are in third grade are similar to those listed by Elkind for the nine year old. The expectations include being able to identify one's own positive characteristics and interests. The third grader should be able to reflect on personal roles at home and at school and identify responsibilities. A third grader is mature enough to have problem-solving skills and be able to resolve conflicts with other.

I want to go outside
and play a game.



9-year-old boy Honduras DAS

Taking this into account, we wonder how this child will process his experiences. Will he blame himself for the situation? Will the fear and trauma resulting from these experiences change his interests and exploration of the world in the future? Most troubling of all, will these experiences make him less independent, less responsible, and less self-assured?

According to theories from Erikson, it is around this age in which children develop either a sense of industry (confidence in their ability to influence their environment with their actions) or a sense of inferiority (lack of confidence of the effectiveness of their actions) depending on the support they receive from adults for their accomplishments during this time. Erikson wrote that this stage, “seems all set for ‘entrance into life’, except that life must first be school life, whether school is field or jungle or classroom” (1950, p. 258). In the countries of the United States and in Honduras, a boy of nine should be in school and not walking with his father from Honduras to Texas.

This nine-year-old boy is missing what he needs to develop a sense of “industry.” He needs stable living and school situations. He needs the dependable presence of competent, caring adults at home, at school, and in his community.

Upon arrival at the Texas border, the boy and his father were apprehended. Most likely, they would have been sent to a Customs and Border Protection (CBP) holding facility. Below is an Office of the Inspector General (OIG) photo of an overcrowded holding facility in McAllen, Texas.



screen shot www.oig.dhs.gov July 2, 2019

In regard to the facilities that they were transferred to, we do have some limited knowledge of the conditions inside the Karnes center. According to an article from the *Washington Post*, as of March 2019, the Karnes facility housed 528 adults and minors. We also know that residents are not allowed phone privileges, but they are allowed to send and receive letters. Primarily designed to house adult women, the facility was previously under review to be phased out as housing for migrant families in the U.S., possibly having its primary purpose shifted to the housing of single adults. Taking this into account, we can wonder what provisions the those that maintain the facility have made for the housing of children, or if any special arrangements have even been made for their sleeping or socialization.

We also have some limited knowledge regarding the conditions of the Port Isabel Service Processing Center. An article published by the *Texas Tribune* on June 27 in 2018, states that residents at this facility wear orange jumpsuits as their main article of clothing. The article also states the presence of guard towers, razor-wire, and high fences, adding to the prison-like feel of the facility. This facility has been announced by U.S. Immigration and Customs Enforcement as “the primary family reunification and removal center for adults in their custody”. In comparison to the Karnes facility, the population housed here is significantly larger, numbering in 1100’s. A quote from the *Texas Tribune* article states that on Tuesday, June 26 of 2018, ICE made an official statement that this was renamed “the primary facility to house alien parents or legal guardians going through the removal process. No children will be housed at the facility.” It appears that this false claim was **not** corrected. According to the 2019 report, *Child Separations by the Trump Administration* (p. 2), “at least five children were moved to multiple ORR facilities – including one to Port Isabel after the Administration claimed that ‘no children will be housed at the facility even for short periods’.” To the best of our knowledge, this particular 9-year-old boy and his father remained at the Port Isabel Service Processing Center until Mid-August of 2018.

What will this boy from Honduras need to heal and thrive? How can psychologists help him? Cristina de la Peña and her colleagues have suggestions, “Migrant families crossing the southern border tend to identify with narratives of strength through adversity rather than victimization, and actively rely on certain identity and cultural resources that promote adaptation, such as strong family and community values, religious faith, humility and work ethics, and even humor. Therefore, a broader strengths-based approach that looks beyond a narrow psychopathological lens, becomes crucial in designing interventions and helping these families heal and thrive” (de La Peña, 2019, p. 160).

Introduction to the “Teenage Children”

As students of psychology, we call the young people whose ages are between twelve and sixteen years, “adolescents.” In our experience, persons who are 12-16 years old object to being called adolescents and prefer “teen” or “teenager”, even if their age is twelve and has no “teen” in it.

Health and Human Services refers to younger children as “tender-age” because they are vulnerable and need to be treated with tenderness. Please remember that separated teenagers also need to be treated with tenderness, because they too are very vulnerable.

In the staff report, *Child Separations by the Trump Administration*, there are five case studies of the adolescent children. They are 12 years, 13 years, 13 years, 15 years, and 16 years old and would be considered “teenage.”

12-Year-Old Girl: The 12-year-old early adolescent girl was probably experiencing the “perils of puberty” and all of the associated physical changes during her migration journey. For her, early adolescence is a time of disruption and risk, but also a time of opportunity and growth.

13-Year-Old Boy: The 13-year-old early adolescent boy from Guatemala needed grit and determination to survive the arduous long-distance journey from Arizona to Guatemala. Surviving the long journey with his father probably helped his identity formation.

13-Year-Old Boy: The second 13-year-old early adolescent boy from Guatemala faced many premigration and postmigration ecological risks.

15-Year-Old Boy: The 15-year-old boy from Guatemala and his father survived the journey to the Arizona border and then they were separated. His father went to the hospital and was later deported without his son. The 15-year-old boy was traumatized by being moved multiple times while he was in custody.

16-Year-Old Boy: The sixteen-year-old boy from Honduras was separated from his father near Phoenix, Arizona, then transferred to three different facilities near the Texas border. Then he was sent to Virginia and then to California. He experienced multiple disruptions and traumas.

Note: In the grey boxes are your descriptions of each of the ten case studies.

Case study from the Staff Report, *Child Separations by the Trump Administration*

Girl 12: This girl from Guatemala was 12 years old when she arrived with her father in May 2018 at the Arizona border. The following day, May 19, the child was transferred from the Border Patrol facility to an ORR facility in Corpus Christi, Texas. Her father was sent to U.S. Marshals custody on May 21 and returned to CBP custody the same day at the same facility where he and his daughter had been detained a few days earlier. The father was moved to five different ICE detention facilities in Arizona, Georgia, and Texas. He was not reunited with his daughter until July, two months after they were separated.

Being 12-years-old is often a difficult time for girls all over the world. The physical changes associated with puberty are rapid, diverse, and remarkable. Typically, a 12-year-old girl is reaching puberty which begins with a growth spurt, weight gain, breast development, followed by the appearance of body hair, and then menarche, the first menstrual period. We wonder if the girl from Guatemala was menstruating. We predict that puberty would be especially difficult for this girl because she is without her mother and was later separated from her father.

I am bleeding.

Where is Mama?

Does everyone know?



12-year-old girl Guatemala DAS

According to developmental psychologists Graber and Brooks-Gunn, “the physiological changes at puberty have been linked to perturbations in mood” and early adolescence has been described as the most self-conscious and the moodiest time of life. According to Elkind (another developmental psychologist), the 12-year-old girl “does not have her emotions in full rein, however, and often gets carried away” (1994, p. 232). Young adolescents become preoccupied with what others think about them and they assume that an “imaginary audience” is watching them, their appearance, and their behavior. The skin of girls who are twelve often becomes rougher and they may experience acne and an increase in body odor. Girls may have difficulties with cramps or an irregular menstrual cycle. Was this girl going through what psychologist Elkind called “the perils of puberty”? Was she moody, embarrassed, or depressed?

The case study of the 12-year-old Guatemalan girl does not describe her pubertal status, her social-emotional state, or her relationships with peers or family members. We know from research on this age group that family flexibility and positive communication helps self-conscious girls feel better about themselves.

Many more boys than girls from Guatemala make the long, treacherous journey to the United States. More often, the girls are encouraged to fulfill the traditional female roles and stay in their Guatemalan communities to care for families. This 12-year-old girl is unusual in that she attempted a dangerous and violent journey to the southern border of the United States. As many as 60% of migrant girls and women from Central America and Mexico are sexually assaulted during migration. We don't know what might have happened to her.

We wonder if she knew about the potential risks of her journey to the Arizona border. Depending on what she was told by her father during their journey, and testimonies from other migrating children, the realization that she was at risk of rape, trafficking, and other atrocities could cause a more specialized form of stress. During the age of twelve, a sense of personal identity and a "testing of roles" takes place. The realization that she and her father faced differing risks related to gender over the course of their migration could impact how she now views herself as an individual.

We also don't know about her ethnicity, first language, socioeconomic condition, or why she left her home. Early adolescence is especially difficult for poor, rural, Mayan Guatemalan girls. Many suffer from food insecurity, undernutrition, obesity, poverty, lack of sexual education, violence, injury, depression, and discrimination. Guatemala has one of the highest adolescent pregnancy rates in the world. "Adolescent childbearing is directly associated with education, ethnicity and poverty, which increases vulnerability among Indigenous young women living in poverty" (Lemon et al., 2017, p. 1149). Most immigrant youth from Guatemala are Mayan. Perhaps this Guatemalan girl was Mayan and living in poverty? Maybe that's why she and her father left Guatemala?

We don't know why the girl made the journey with her father. We don't know if she had a choice or what her expectations were. Interviews by Lilia Soto with nineteen adolescent girls who made the long migration journey to the U.S. found that the girls were not involved in the decision-making or planning for the journey "because they are girls." The migration journey can be a rite of passage for boys, but rarely for girls. This lack of control or involvement in decision-making could have an impact on her independence as a young adolescent as well her identity development. (Identity versus Identity Confusion is the stage of development associated with adolescence according to Erik Erikson's theory).

At the age of twelve, children begin to distance themselves more from their parents and explore more of their individuality outside of their family. This could include socializing with friends and joining after school groups to experience common interests with their peers. There is a possibility that this experience has made her more emotionally dependent on her father and less secure in her ability to safely explore her

interests and environment. On the other hand, the shared experience could have led to a closer relationship with her father. Another possibility is that she gained inner strength, more faith, and a sense of self-efficacy from surviving a long and difficult journey.

This 12-year-old girl is undergoing dramatic physical, cognitive, and psychological change. She has lived through a long ordeal and she is vulnerable. Developmental psychologist Ann Masten views early adolescence as a time of disruption and risk, but also a time of opportunity and growth. The 12-year-old girl might be psychologically resilient and could experience a “positive turnaround.” We don’t know about her inner resources, her strengths, and her resilience. The table below is about psychological resilience and the personal qualities that help to make resilience possible.

Masten’s Short List of Person-Centered Resilience Factors and Implicated Human Adaptive Systems	
Resilience Factors	Human Adaptive Systems
Positive attachment bonds with caregivers	Attachment; family
Positive relationships with other nurturing and competent adults	Attachment
Intellectual skills	Integrated cognitive systems of a human brain in good working order
Self-regulation skills	Self-control systems and related executive functions of the human brain
Positive self-perceptions; self-efficacy	Mastery motivation system
Faith, hope, and a sense of meaning in life	Meaning-making systems of belief

In an article titled, “Educational Resilience of an Undocumented Immigrant Student: Educators as Bridge Makers”, the educational journey of a Maya Q’eqchi’ Guatemalan girl is described. This immigrant girl came to the United States when she was a young teenager. She went on to college and later attributed her academic success to hope and “her unwavering desire to make a good life for herself and her family. Words of encouragement and positive role models helped [her] to aspire and dream of a better future” (Borjian, 2016, p. 131). Despite the long and dangerous journey, many immigrant children have a capacity for hope, resilience, and success, especially if they have support and positive role models.

Case study from the Staff Report, *Child Separations by the Trump Administration*

Boy 13: This boy from Guatemala was 13 years old when he arrived with his father on June 11, 2018, at the Arizona border, and they both were brought to a Border Patrol facility. The next day, June 12, the father was sent briefly to U.S. Marshals custody before being returned to the same Border Patrol facility. The child, however, had already been transferred to ORR custody that day, and on June 15, he was admitted to the ORR Homestead facility in Florida, run by a for-profit contractor. The father was moved to three different ICE detention facilities before being reunited with his son more than a month after they were separated.

Two of the ten case studies in the report *Child Separations by the Trump Administration* are 13-year-old boys from Guatemala who traveled more than 2,000 miles from Guatemala to the Arizona border in the United States. They are both young adolescent boys and they have much in common developmentally and culturally.

Early adolescence is a time of rapid and dramatic growth and represents the transformation from childhood dependence to physical maturity and personal autonomy. The physical changes of puberty are largely brought about by the growth hormones and the sex hormones. For boys, the onset of puberty is usually assessed by primary sex characteristics (the growth of sex organs) and secondary sex characteristics (bodily changes resulting from the hormonal changes of puberty). At thirteen many boys are developing facial hair and their voices are deepening. Early maturing boys tend to have more favorable body image and to be more well liked.

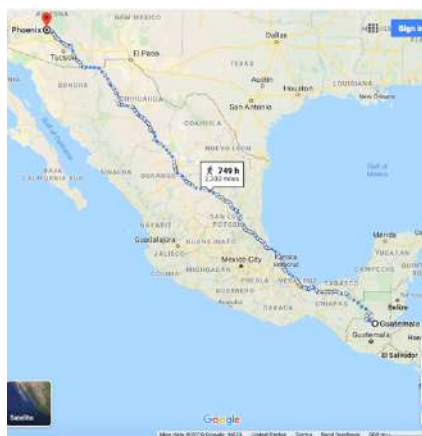
For boys, the period of most rapid growth in height occurs about eighteen months to two years later than girls. A 13-year-old boy may gain as much as four to six inches in height in one year. Taller adolescent boys may be more admired by their peers than shorter ones. In terms of boys' physical development, the growth pattern for boys from Guatemala may be different from boys from other countries. In Guatemala 30.4% of adolescent boys attending school have moderate to severe stunting. The stunting is attributed to undernutrition and malnutrition.

From the psychological point of view, the major task of adolescence is the establishment of an identity. According to Erik Erikson, "Young people must become whole in their own right, and this during a developmental stage characterized by a diversity of changes in physical growth, genital maturation, and social awareness. The wholeness to be achieved at this stage I have called a sense of inner identity." In forming this identity, the young adolescent questions and evaluates his interests, abilities, preferences, beliefs, and hopes for the future.

Many young adolescents have momentous changes in their intellectual ability as their "thinking takes wings." They can generate questions, examine hypotheses, and think abstractly. Jean Piaget called this stage of cognitive development "formal operational thinking"; Piaget described an adolescent as "an individual who constructs systems and theories." More recent views on Piaget's theory of formal operational thought are that it first emerges in adolescence but continues developing throughout adolescence and even into adulthood.

According to David Elkind, sometimes the thinking of the young adolescent boy gets carried away. The 13-year-old thinks that others will grow old and die, but not him. The young adolescent boy from Guatemala may develop what Elkind calls a personal fable, a belief he is special and unique. The young adolescent's personal myth of specialness gives him a sense of invincibility. His fable might include undertaking the hero's journey 'el norte', a journey which involves grave danger. Adolescent boys from Central America describe their main motivation for undertaking the difficult and dangerous journey to the U.S. as wanting to help their families financially, which is a noble goal. Some may view the journey as a rite of passage for boys. This young adolescent boy may have viewed the journey as a chance to prove himself. The 13-year-old boy and his father were fleeing poverty and violence in Guatemala. The boy may not have wanted to believe how very hard the 2,272 mile journey from Guatemala to Arizona would be.

Guatemala is a collectivistic country, with the family at the center of daily life. "The family system often serves dual purposes: psychologically, as a foundation for attachment and identity, and instrumentally, as a resource for problem solving and social support" according to Silva and colleagues" (2017, p. 455). It seems important that this thirteen-year-old took arduous the long journey with his father because he could be a source of wisdom and support.



The following table is based on information from the 2017 article, "Integration of unaccompanied migrant youth in the United States: a call for research about the experiences of unaccompanied migrant youth during premigration and postmigration" by Cardosa and colleagues. The table includes both the risks and challenges the migrant youth experienced as well and their resiliency and strengths. Although this boy was not unaccompanied, many of highlighted sources of risk and resiliency apply to this boy. The goal for psychologists and other mental health professionals is to mitigate risk and promote resilience in youth.

One of the premigration sources of resiliency is cultural values and spirituality. This is similar to Masten's short list of person-centered resilience factors. The last item on Masten's short list is faith, hope, and a sense of meaning in life. According to Masten, "Cultural traditions, including religion, also clearly play a role in resilience,

although protective factors rooted in cultural beliefs and practices have been neglected in research until recently. Belief systems imbue life (and death) with meaning and may sustain adaptive behavior in the face of great adversity” (2010, p. 30).

Pre- and Post-Migration Sources of Individual Risk and Resiliency		
	Premigration	Postmigration
Risks	Trauma exposure Undocumented status Child trafficking Limited education Mental health symptoms	Acculturative status School disengagement Complex legal status Deportability Discrimination Mental health symptoms
Resilience	Resiliency Grit and determination Survival skills Cultural values and spirituality Ability to navigate long distance travel	Future orientation Desire to work and learn Motivation to achieve goals Psychological flexibility Multilingual development

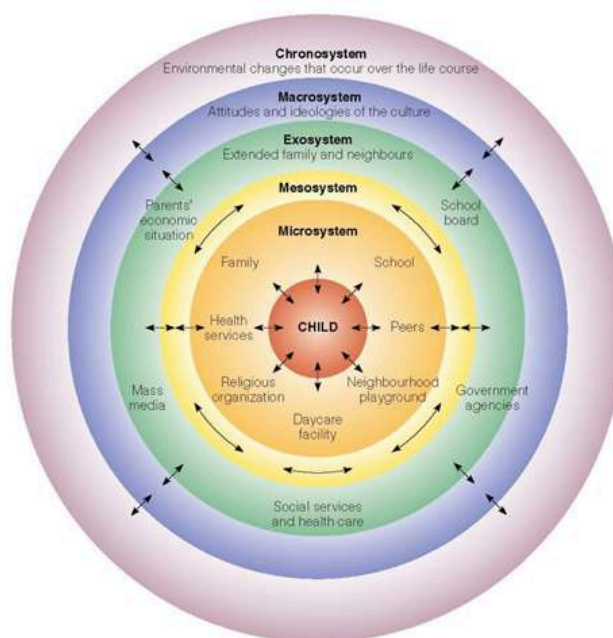
This 13-year old boy from Guatemala seems to be resilient. He was able to navigate long distance travel. He is a survivor and it is likely that he has grit and determination. Upon arrival, he was separated from his father, but they were reunited after on month. What we don't know about is his relatively brief experience at the Office of Refugee Resettlement (ORR) Homestead facility in Florida. His experience in the for-profit facility in Florida might have been difficult, even traumatic. At the ORR Homestead facility there were allegations of staff criminality and there is evidence that the education provided was inadequate. Even if bad things happened at the Homestead facility, at least the boy was not there for a long time and unlike many migrant children, he was reunited with his father.

Case study from the Staff Report, *Child Separations by the Trump Administration*

Boy 13: This boy from Guatemala was 13 years old when he arrived with his father in May 2018 at the Arizona border. The child was taken away from his father and admitted to ORR custody at a facility near Manassas, Virginia. He remained there for six and a half months and was then transferred to a facility back in Texas meant for longer term care of children. As of May 2019, he was still there, even though his father was deported months ago, in August 2018. Again, the records produced to the Committee do not indicate what steps the Administration has taken to reunify this family, and this boy is now 14 years old.

The brief description provided in the second case study of a 13-year-old boy from Guatemala suggests that the second boy had a worse experience in the United States than the first 13-year-old boy. The second 13-year-old boy was separated from his father in Arizona and then sent across the country to a “facility” in Virginia where he remained for six and a half months. The boy’s father was deported to Guatemala and the boy was sent to a different facility in Texas; this “facility” was meant for longer term care of children.

Psychologist Urie Bronfenbrenner developed an ecological theory of child development; this theory doesn’t only consider the child’s immediate environment; it explores the influence of the broader cultural environment on children’s development. The child’s microsystem includes his family, school, and neighborhood; the mesosystem, exosystem, and macrosystem include the broader cultural environment such as social welfare services, legal services, community-based organizations, government programs, mass media, social and economic conditions as well as the history, attitudes and ideologies of the larger society.



Bronfenbrenner's bio-ecological systems theory

<https://misstarver.wordpress.com/2016/09/29/teachers-teaching-culture-community/>

The following table is based on information in the 2017 article, “Integration of unaccompanied migrant youth in the United States: a call for research about the experiences of unaccompanied migrant youth during premigration and postmigration” by Cardoso and colleagues. The table is about ecological sources of risk and resiliency for unaccompanied migrant youth during premigration and postmigration.

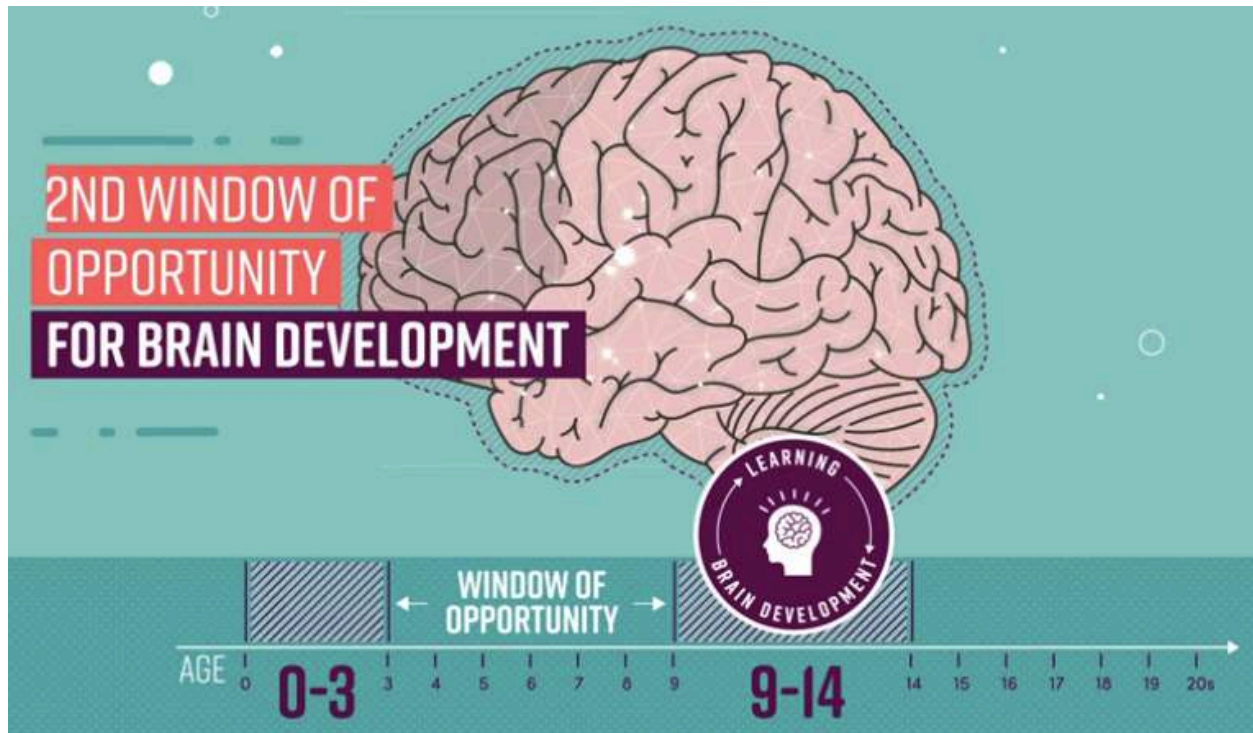
Pre- and Post-Migration Sources of Ecological Risk and Resiliency		
	Premigration	Postmigration
Risks	Structural inequalities Histories of state-sponsored violence Lack of employment/ educational opportunities Fractured health/social service/ educational systems Community violence Family violence Migration-related family separation	Xenophobia Lack of comprehensive migration reform Lack of child-centered policies Lack of post-release services Lack of mental health services for uninsured Complicated family reunifications
Resilience	Extended family kin networks Community/neighborhood support Churches	Pro bono legal resources Extended family kin networks Community-based organizations Innovative school programming Churches

In a 2011 article, “Framing immigration to and deportation from the United States: Guatemalan and Salvadoran families make meaning of their experiences”, Brabeck and colleagues explain that the ecological premigration risks in Guatemala include “poverty, histories of state-sponsored violence and civil war, and previous internal and intergenerational migratory experiences” (p. 279). A 2017 article by Keller and colleagues about pre-migration trauma exposure and mental health functioning among Central American migrants arriving at the U.S. border found that 30% of families from Guatemala had received death threats before migration and 20% had a family member murdered; 30% of migrants from Guatemala met the criteria for Posttraumatic Stress Disorder (PTSD).

It seems that postmigration ecological risks are overwhelming the young adolescent boy’s life and that U.S. government services are not giving the boy opportunities to make his own choices about his life. The second 13-year-old boy has been moved from facility to facility and from state to state. Child-centered post migration services for this boy were not provided and family reunification did not occur.

Early adolescence is a critical stage in human development. At this stage there is a rapid increase in the synaptic connections in the brain and synaptic pruning allows the

brain to work more efficiently. Early childhood is the first “window of opportunity”; the stage of early adolescence presents the second “window of opportunity”.



screen shot from documentary short film, <https://www.youtube.com/watch?v=-1FRco3Bjyk>

Many psychologists believe that these brain developments may be related to Piaget’s observations about formal operational thinking.

It appears that the “remodeling” of the brain is also related to social and cognitive functioning in adolescence. “Puberty brings a temporary imbalance between emotional impulse and cognitive control” according to psychologist Peter K. Smith. The temporary imbalance may explain why some 13-year-old boys show an increase in risk behavior and delinquency. According to Peter K. Smith, how parents deal with puberty can make a positive difference in their children’s lives. Unfortunately, this boy has reached the difficult age of 14 without his father (or mother). Furthermore, the boy has been confined to long-term care facilities. His developmental tasks include identity formation and acquiring a sense of personal autonomy. One can only hope that the long-term care facility in Texas has employees who are competent, caring adults who recognize his vulnerability and take a personal interest in his well-being and psychological development.

Case study from the Staff Report, *Child Separations by the Trump Administration*

Boy 15: This boy from Guatemala was 15 years old when he arrived with his father in May 2018 at the Arizona border. He was sent to an ORR facility in Phoenix, Arizona on May 16, while his father went to a hospital that same day. On May 17, the father was sent briefly to U.S. Marshals custody and then returned to CBP custody on the same day to the same facility, but his son had already been transferred to ORR custody. A week later, the father was moved to the first of several ICE detention facilities in Arizona. On July 3, he was deported without his son. The boy remained in ORR custody for three months before being released to a sponsor in August.

In his book, *A sympathetic understanding of the child: Birth to 16*, psychologist David Elkind describes the 15-year-old. Some aspects of his descriptions seem to be very American or Eurocentric; other aspects seem more universal. The 15-year-old may become aware that his childhood is gone, and he is on the threshold of adulthood. It seems that the 15-year-old doesn't want to answer too many of his parents' questions about his activities. The young person is aware of his impending adulthood and he becomes impatient with questions that suggest he is a child, accountable to his parents. According to developmental psychologist Ann Masten (2004, p.1072) "cultures and the adults charged with socializing young people to take their place in society have devised contexts and strategies to scaffold these transitions in such a way as to positively influence the direction of development." One strategy for the transition from dependent childhood to emerging adulthood is providing rites of passage.

Some traditional cultures have rites of passage which are ceremonies or rituals that mark the transition from one status to another. For instance, in Samoa, adolescents between the ages 14 and 16 receive multiple tattoos. Margaret Meade wrote a book about this practice, *The Coming of Age in Samoa*. In Mexico, 15-year-old girls celebrate quinceañera, when a 15-year-old girl has a party and is presented as a young woman. Some "rites of passage" in the United States are associated with the age of 15. In Texas the legal age for being employed is 15. In Missouri the legal age for driving with a permit is 15. Other passages are associated with events such as puberty or graduating from middle school. In the U.S. many of the "rites of passage" such as voting and purchasing alcohol don't take place until 18 or 21. For some families in Guatemala, the migration journey to the U.S. is considered to be a rite of passage.

Perhaps the migration journey of the 15-year-old Guatemalan boy with his father was a rite of passage. They both survived the long journey. We can imagine that the father made the journey with his son to protect him from loneliness, isolation, hunger, dehydration, physical abuse, extortion, kidnapping, and incarceration.



creative commons "[MVW 8660](#)" by [vanwormerphoto](#)

He may have also been protecting his son from riding on top of La Bestia (The Beast). La Bestia refers to the freight trains that transport a variety of products to the United States. The unaccompanied migrant youth who take La Bestia as their method of migration to the United States are among the poorest of migrants. Although riding on La Bestia is cheaper than paying smugglers (known as coyotes), La Bestia is even more dangerous. Migrant youth are at risk for falling or being pushed off the freight train, amputation, and even death.



screen shot from *Forced From Home: The Lost Boys and Girls of Central America*

The overwhelming majority of Guatemalan youth who take the migration journey to the United States are indigenous. They speak Mayan languages such as K'iche' and Mam. A 2017 article titled, "Transnational Information Politics and the 'Child Migration Crisis': Guatemalan NGOs Respond to Youth Migration" by Nicols and colleagues explains the migration challenges for Mayan Guatemalan youth. According to the interviewee of a Mayan researcher, "In the Western world, you are a child until you are 21, and an adolescent from maybe 12 or 16."... In the Mayan world, there is a different perspective around childhood and adulthood that is not determined by age but by duty and responsibility... When a child chooses to leave and migrate, parents are not forcing

them to migrate... They [children] are leaving with a very mature sense of the needs their families have.”



Creative commons ["Young Mayan Man"](#) by [NCRreedplayer](#)

Many of the Mayan adolescents have a different physical appearance than the Guatemalan adolescents who speak Spanish as their first language. They are often discriminated against, as were the Roma family described in the first case study in the report, *Child Separations by the Trump Administration*. This kind of discrimination is a violation of their rights according to Article 30 (Children of minorities/indigenous groups) in the *U.N. Convention on the Rights of the Child*.

Psychologists Rachel Hershberg and M. Brinton Lykes have been studying father-son relationships among Guatemalan Mayan families. They noted that there are nontraditional (not *machismo* or hypermasculinity) examples of Mayan fathering, especially in terms of providing emotional supports for their sons. The Mayan fathers they interviewed expressed love and concern for their children. Two of the sons who remained in Guatemala when their fathers migrated North took on the roles of “sons-as-fathers” for their younger siblings.

We know that the 15-year-old and his father both survived the journey to the Arizona border. Perhaps they had an emotionally supportive relationship and grew closer on the migration journey of more than 2,000 miles. On May 16, the 15-year-old boy was separated from his father and sent to an ORR facility in Phoenix, Arizona. It appears that the teenager was in better health than his father who was sent “to a hospital that same day.” This outcome was unnecessarily cruel and could have been devastating for the son for several reasons. His father - his protector - was taken away from him. CBP and ICE forced a kind of family role-reversal. In addition, the son must have been very worried about the health of his father. We know from the report that, “On May 17, the father was sent briefly to U.S. Marshals custody and then returned to CBP custody on the same day to the same facility, but his son had already been transferred to ORR custody. A week later, the father was moved to the first of several ICE detention facilities in Arizona. On July 3, he was deported without his son.” We wonder if they ever spoke or saw each other again.

Case study from the Staff Report, *Child Separations by the Trump Administration*

Boy 16: One child cycled through five different ORR facilities over the course of more than eight months. This child was 16 years old when he arrived from Honduras in June 2018 and was separated from his father at the border near Phoenix, Arizona. The child was sent to three different facilities near the south Texas border, spending a few weeks or months at each location. In November, he was sent to a facility in Virginia, where he stayed for more than two months, and was then moved to a facility in California in February 2019. He was released to a sponsor in March 2019. During this time, the child's father was sent to an ICE detention facility in Florence, Arizona, moved to an ICE contractor detention facility, moved to an ICE detention facility in Eloy, Arizona in June 2018, and deported in July 2018.

In his book, *A sympathetic understanding of the child: Birth to 16*, psychologist David Elkind describes the 16-year-old as finding a new equilibrium, a balance between social and emotional growth. "Balance and moderation, rather than extremes and exaggerations, characterize the emotional life of the sixteen-year-old... Adolescents at sixteen exhibit more poise and convey a greater sense of equality in relationships with adults than was true at earlier ages... A new sense of autonomy and equality with parents means that the young person no longer has to defy or challenge parents in order to demonstrate independence (pp 247-8).

It is very unlikely that this 16-year-old boy from Honduras described in *Child Separations by the Trump Administration* has found a new equilibrium and balance. It is unlikely that he has become poised. In the staff report that was prepared for Elijah Cummings, the 16-year-old boy from Honduras is included to be an example of "separated children were moved multiple times while in custody, adding to the trauma they experienced" (p. 19). This boy was separated from his father and then sent to **five** different ORR facilities. Furthermore, he had been living in Honduras, a country with one of the highest murder rates in the world. A study of premigration trauma in adults from Honduras found that 60.3% had been threatened with violence, 51.5% had received death threats, and 37% had a family member murdered. From 2011 to 2015, San Pedro Sula, Honduras, was identified as the most violent city in the world outside a war zone.

The following photograph was taken by Dominic Bracco II and it is included in this report with his permission. The photo shows that murder has become so commonplace in San Pedro Sula, Honduras that the dead body lying in the middle of the street is ignored. The merchants go about their business, while the other adults appear to be busy conversing with each other and looking away. A young child seems to be eating something and looking at the dead body. In San Pedro Sula, dead bodies sit for hours before the coroner has time to pick them up.



Dominic Bracco II

The *United Nations Convention on the Rights of the Child* states that children **must** be protected from all forms of violence. The 16-year-old boy from Honduras is **not** being protected. The table, “Selected Rights from the U.N. Convention on the Rights of the Child and How These Apply to Honduran Children in Honduras and in the United States” is based on information in a 2019 article by Alberto and Chilton, “Transnational Violence Against Asylum-Seeking Women and Children: Honduras and the United States-Mexico Border.” The table demonstrates that many of the most basic rights of children (life, protection from all forms of violence, physical and psychological health, their best interests) are being violated for Honduran children in Honduras and in the U.S.

For example, Article 3 of the *Convention* is titled the “Best interests of the child” and this 16-year-old was living in one of the worst places for children. The capital of Honduras is called the “murder capital of the world.” Teenage boys in Honduras are forced to join gangs or become involved in trafficking. The 16-year-old fled from dangerous Honduras and now it appears that his rights were violated by the U.S. Office of Refugee Resettlement. Please note that Article 3 and Article 6 mention lawmakers.

Selected Rights from the U.N. Convention on the Rights of the Child and How These Apply to Honduran Children in Honduras and in the United States		
Article in <i>Convention on the Rights of the Child</i>	Description	Child Rights Violations in Honduras and U.S.
Article 3 (Best interests of the child)	Prioritize the best interests of the child. Think about how adult decisions will affect children. This particularly applies to budget, policy and lawmakers.	Children are recruited or threatened/forced to join gangs as foot soldiers. Children are abducted, sold or trafficked.
Article 6 (Survival and development)	The child has right to life. Governments should ensure that children survive and develop healthily.	Police enforcement in Honduras may execute a child assumed to be in a gang. In the US, asylum-seeking children are not always given the right to life, survival, and development.
Article 19 (Protection from all forms of violence)	Protect child from all forms of physical or mental violence, injury or abuse, neglect or treatment, maltreatment or exploitation.	Mental health screening is not being done at the U.S. border, but should be. Asylum-seekers should be screened for violence exposure and psychological trauma.
Article 24 (Health and health services)	Obtain highest attainable standard of health.	Unaccompanied minor children arriving in the U.S. may be held in inhumane conditions in detention centers.
Article 39 (Rehabilitation of child victims)	Promote physical and psychological recovery and reintegration of child victim. Pay attention to restoring the health, self-respect and dignity of the child.	In general, in Honduras, there is a lack of support for victims of violence. The U.S. Trafficking Victims Protection Reauthorization Act of 2013 dictates the treatment of unaccompanied children, permits trafficking victims to remain in the U.S., and limits the time spent in detention for families.
Article 40 (Juvenile justice)	Children have the right to be heard in judicial and administrative proceedings.	Border agents and the judicial system in the U.S. do not provide adequate legal representation for unaccompanied minors.

Children cannot be exploited, abducted, sold or trafficked. The U.S. Trafficking Victims Protection Reauthorization Act of 2013 dictates the treatment of unaccompanied children, permits trafficking victims to remain in the U.S. and should limit the time in detention of families.

Each year, hundreds of thousands of detained people are held in these processing centers along the U.S. southern border. Processing centers are secure facilities of various sizes with locked enclosures to detain children and families. “As outlined in the 2017 American Academy of Pediatrics' (AAP) Policy Statement on the Detention of Immigrant Children, children should not be subjected to the CBP processing centers” (Linton et al., 2018, p. 125). The screenshot of a photo shows a baby in diapers who has been detained in a very crowded CBP locked enclosure. The photo is from the publicly released report of the Office of Inspector General, Department of Homeland Security, July 2, 2019.



screen shot www.oig.dhs.gov July 2, 2019

The Office of Inspector General in the Department of Homeland Security prepared a report, “Management Alert – DHS Needs to Address Dangerous Overcrowding and Prolonged Detention of Children and Adults in the Rio Grande Valley”; the report was dated July 2, 2019 and publicly disseminated. The photograph here shows desperate young women who are confined to a cell that was supposed to be for holding male juveniles. The unsanitary, unsafe, and unhealthy conditions in the holding cell violate their rights.



screen shot www.oig.dhs.gov July 2, 2019

When one considers the many serious child rights violations in Honduras, it is no wonder that the 16-year-old boy who is depicted in the screenshot from the film, *Between Borders: American Migrant Crisis* is making his fourth attempt to leave

Honduras and walk to the United States. This journey takes at least 100 days and is very dangerous – he could die. Honduras has a high level of violence and it has one of the highest murder rates in the world. If he stays in Honduras, he could die. Most youth from Honduras feel they have no choice except to take the long and perilous migration journey to the United States. The large majority of the 151 children interviewed by the authors of *Forced from Home: The Lost Boys and Girls of Central America* expressed a willingness to risk the uncertain dangers of the trip north to escape certain dangers they face at home.”



Screen still from the documentary film, *Between Borders: American Migrant Crisis*, 12/1/2019

The 16-year-old boy in *Child Separations by the Trump Administration* did successfully make the long journey to the United States, but he had bad experiences in the United States. In eight months, he “cycled through five different ORR facilities... He was released to a sponsor in March 2019.” Although he was released to a sponsor, his father was deported in July 2018 which means that he was another child who was separated from his family by the policies of the Trump Administration.

What hope is there for the future of this 16-year-old boy who has been exposed to continuous traumatic stress and many violations of his rights as a child? Although his journey in life will continue to be very difficult, we hope that he and his sponsor form positive attachment bonds. We hope that his sponsor is nurturing and competent. We hope that his sponsor helps him to develop self-efficacy and positive self-perceptions. These efforts could promote resilience in this 16-year-old boy.

As students of child and adolescent psychology, the *U.N. Convention on the Rights of the Child* provides guidance for our professional practice of applied educational and school psychology. The *Convention’s* purpose is to secure and advance the physical and mental health, well-being, education, and safety of children and so our professional organizations have endorsed the *Convention* even though the United States has not ratified the *Convention*. As policy-makers and lawmakers, one of the many things that you can do is to urge the ratification of the *United Nations Convention on the Rights of the Child*.

Traumatic Stress and Healing

The staff report, *Child Separations by the Trump Administration*, provides ten “case studies that illustrate their trauma in stark terms. These child separations were not required by law and were not in the best interest of the children.”

There is evidence that separating children from their families causes traumatic stress. In 2018, psychological researchers, Miller and colleagues presented their findings: family separation is the most traumatic of all the possible sources of distress for an immigrant or refugee. Their study, “Understanding the Mental Health Consequences of Family Separation for Refugees: Implications for Policy and Practice” examined the traumatic experiences of 165 adult refugees from Afghanistan, Iraq, and the Great Lakes Region of Africa living in the U.S. and found that relative to 26 other types of trauma exposure, family separation had the direst mental health consequences. This study has similar implications for understanding the ten children in the staff report, *Child Separations by the Trump Administration*. The 165 adults in the study by Miller and others along with the 10 children in the staff report all experienced trauma and family separations.

Our report to the Subcommittee on Civil Rights and Civil Liberties explains the psychological impact of separating children from their families. We do this through sharing our knowledge of child and adolescent psychology, elaborating on each of the case studies, and telling the story of each of these ten children, including their traumas and their possible futures.

We share the stories of these children separated by the Trump administration with you. And because stories unite all of us, you as listeners, own these stories. Now our stories are interwoven in connection - human connection. Once we experience these stories we cannot fully separate ourselves from them. As Representative Ayanna Pressley testified at a federal oversight hearing regarding her visit to a U.S. Customs and Border Protection (CBP) center in Texas, “Today... I make space for the stories our nation so desperately needs to hear in this moment. Mr. Chairman, I cannot un-see what I’ve seen. I cannot un-feel what I experienced. I refuse to - although admittedly it robs me of sleep and peace of mind, but that pales in comparison to the pain of families who have been robbed of their liberty, their rights, and their dignity, some even the lives of their babies.”

Secondary traumatic stress (STS) refers to the emotional strain or tension that one feels as a result of exposure to the trauma that another individual, group, or community, has experienced. Traumatic stress is not only experienced first-hand by the victim, but also by others who become directly and indirectly involved in the trauma. We want the members of the Oversight Subcommittee to be aware as you reflect on these real-life narratives of these ten case studies – these 10 innocent children, you may experience your own symptoms of stress. We know secondary traumatic stress (STS) shows through physical symptoms and illness. According to Meagan O’Malley, Ph.D. and colleagues STS symptoms may include, but are not limited to the following physical

ailments as:

- lowered immune response
- high blood pressure, cardiovascular disease, and stroke
- insomnia
- chronic fatigue
- headaches
- irritable bowel syndrome
- depression and mood disorders
- anxiety disorders
- smoking and alcohol misuse
- poor nutrition

The impact of secondary stress knows no borders. We are all connected. Republican Representative Michael Cloud expressed compassion for those who work for Customs and Border Protection. At CBP, there are men and woman who strive to prioritize life and do the best they can, given the extremely limited resources available. As pointed out by Democratic Representative Rashida Tlaib, U.S. government employees who work for Customs and Border Protection may also be traumatized by child separations. A bibliographic search for the terms “mental health” and “ICE” and “CBP” yielded two recent articles published in the online publication, *Quartz*: July 2, 2019, “Bodies and minds are breaking down: Inside US border agency’s suicide crisis” and another on October 31, 2019, “U.S. border officers die by suicide 30% more often than other cops.”

Suicide is a significant problem for those who work for Customs and Border Protection. CPB is understaffed. The workers are overworked, underpaid, and report feeling stressed and distressed. “While the emotional stress affecting CBP officers can’t compare to the suffering of the tens of thousands of migrants they detain, the same government policies are at the heart of both problems” (Rohrlich & Schlanger, July 2, 2019). According to former CBP Commissioner Gil Kerlikowske, “My continuing thought has been that this level of activity combined with the disastrous policy of wholesale separating children from parents has a very negative impact on CBP personnel. They did not join to take a 2-year-old from his mother.” In reality, the most traumatic aspects of working at CBP are not being overworked and underpaid but being a part of separating children from their families.

How should people deal with secondary traumatic stress (STS)? Here is a list of remedies that work for us:

- Mindfulness and other meditative practices
- Long walks, exercise, and dance
- Leaving work at work
- When we “lose our way”, reorienting to our values
- Singing in the rain
- “Forest bathing” and spending time in nature

- Having a support system at work
- Spending time with loved ones
- Laughter, comedy, and silliness
- Giving back for all we have been given

Elijah Cummings might recommend a life of purpose and passion.

Thank you. We have grown a great deal from reading your staff report and from listening to the testimonials in your congressional hearing videos titled “*Kids in Cages*”, and “*The Trump Administration’s Child Separation Policy: Substantiated Allegations of Mistreatment.*”

Thank you for continuing your work on child separations. Again, we are not experts on DHS, HHS, and DOJ, we cannot determine if the Trump Administration executed a deliberate policy “to take thousands of babies, infants, toddlers, and children away from their parents and transfer them to government custody” (*Child Separations by the Trump Administration*, p. 24). However, we do have some expertise on child and adolescent psychology and we can confirm that the policy of child separations by the Trump Administration was cruel as it inflicted trauma and serious psychological harm on the ten migrant children described in the staff report.

It is our hope the information in our report about child and adolescent psychology is not only meaningful but also helpful for you. In our research, we learned from reading and thinking, and listening to each other. We also learned from others who shared their first-hand accounts of their direct experiences with family separations in Missouri and at the border of U.S. and Mexico. We learned from videos such as Brent Renaud and Craig Renaud’s award-winning documentary which follows three Honduran teenage boys trying to “make it” to the United States. And, because some ideas cannot be expressed in words, we learned from the photographs of award-winning photographer, Dominic Bracco II.

As students of psychology, we seek to use our knowledge to improve the lives of others. It is our sincere desire that all of us (including you) adopt the personal mission of Elijah Cummings. For it was his mission and vision “to empower people, to make people realize that the power is within them, that they too can do the things that they want to do.”

Sincerely,

Dr. Deborah Stiles, Xavier Baker, Vanja Bajer, Kelly Ann Brown, Marie-France Castor, Kaori Chaki, Tierra Metcalfe, Niharika Murthyraju, Keary Ritchie, Brittany Steinbrueck, Erica Suchland, Brittany Weaver, and Anna Werner

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Suggested Readings

Please read Ann Masten's 2015 very **readable** article titled, *Ordinary magic: Lessons from research on resilience in human development*.



Please read Bruce Perry's very **readable** paper, *Bonding and Attachment in maltreated children: consequences of emotional neglect in childhood*.



Please **reread** your committee's report, *Child Separations by the Trump Administration*.



Child Separations by the Trump Administration
Prepared for Chairman Elijah E. Cummings

Suggested Activities

1. Promote the ratification of the *U.N. Convention on the Rights of the Child* by the U.S.
2. Acknowledge *World Children's Day* (November 20).
3. Propose legislation supporting immigrant and asylum-seeking children and name the bill after Elijah E. Cummings.
4. Practice self-care because you too are affected by secondary traumatic stress.

Relationship between Change of Information Literacy and Amount of Speech: Focusing on STEM Education at Japanese Junior High School

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This study aimed to clarify the change in information literacy and the amount of speech among junior high school students in the group activity of science, technology, engineering, and mathematics (STEM) education, which was an interdisciplinary approach using their tablet terminals. A total of 141 grade 9 students, formed into groups of three or four, attempted the physics problem of “how can we derive the regularity of falling motion?” To solve the problem, they had to use their knowledge of both science and mathematics. Each student’s dialogues were recorded by the speech recognition system “Hylable (<https://www.hylable.com/>)” to analyze the relationship between the amount of speech and information literacy. We found that the students who had a high amount of speech increased: “I select and discard the information I have gathered to address the issue in light of the constraints and conditions of the issue” as information literacy. On the other hand, the students who had a low amount of speech increased: “When deciding on a specific approach to a problem, I consult the opinions of my teachers, friends, family, and acquaintances.”

Keywords: STEM education, information literacy, amount of speech, junior high school students

Introduction

Matsubara and Kosaka (2017) described the degree of integration of science, technology, engineering, and mathematics (STEM) education increased in the following order: “an approach in which students learn concepts and skills from each subject in a common subject (Thematic or Multidisciplinary),” “an approach in which students learn deeply connected concepts and skills from two or more subjects (Interdisciplinary),” and “an approach in which students work on real-world problems and use knowledge and skills from two or more subjects (Transdisciplinary).” They also suggested cross-curricular learning practices that take into account the degree of integration according to students’ realities.

In contrast, the new Courses of Study, which were implemented in junior high schools from April 2021, requires students to develop the ability to use information to realize independent, interactive, and deep learning through the use of ICT (Ministry of Education, Culture, Sports, Science and Technology, 2017a).

Based on the above background, this study aimed to implement an interdisciplinary approach to STEM education in middle school science classes, in which students use information and communication technology (ICT) to solve problems using their knowledge of science and mathematics, and clarify the relationship between changes in information utilization skills and the amount of speech of individual students.

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Picture 1: Class conducting STEM education using Hylable (red circle)

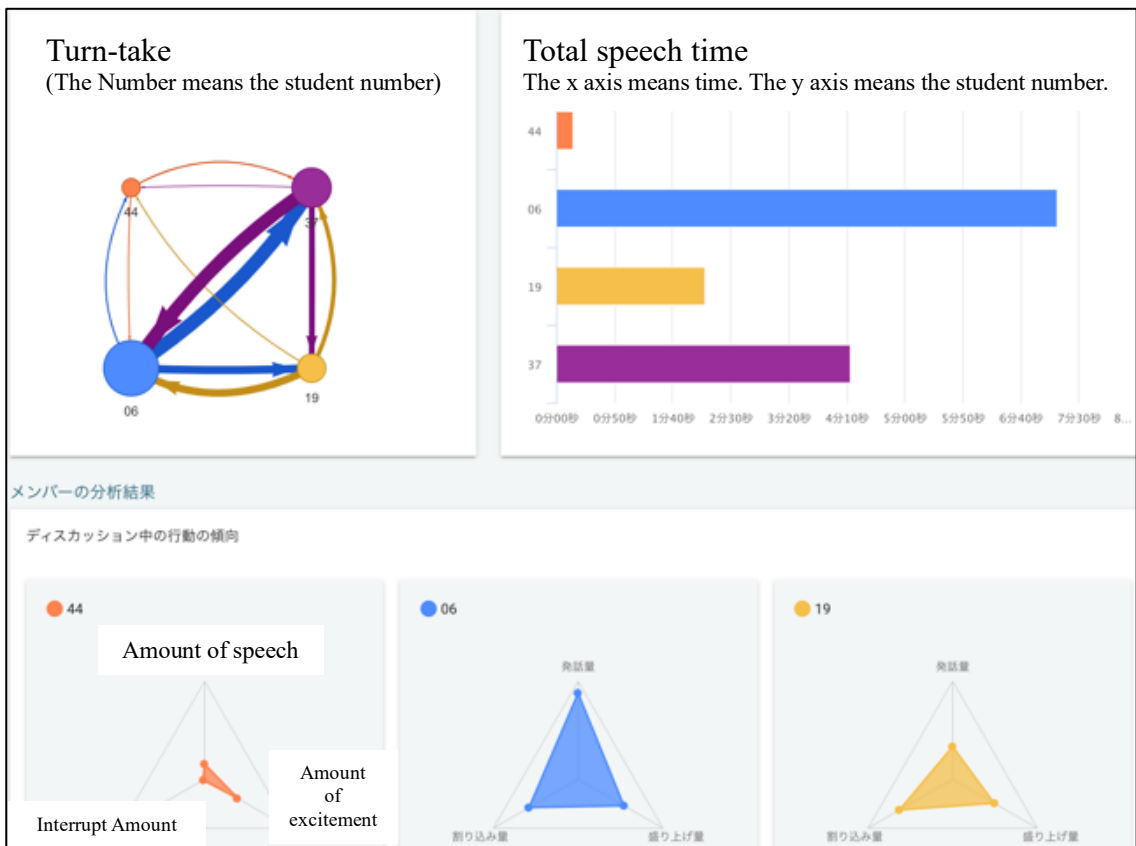


Figure 1: Results of students' amount of speech

Methods

From November to December 2018, we taught 141 grade 9 students at a junior high school affiliated with a national university in Tokyo, Japan, with the question, "How can we derive the regularity of falling motion?" This theme considered STEM education with an interdisciplinary approach, in which learning experiences are formed by utilizing knowledge and skills from science and mathematics.

A total of 56 lessons were conducted in four classes (14 lessons per class, 50 minutes per lesson). Students worked individually to derive the regularity of falling motion, and then conducted experiments in groups of three or four, sharing their ideas (Picture 1). The students learned to find regularity from the data obtained. In terms of information utilization skills, two double terminals were provided to each group. This allowed the students to use the tablets to design the experimental method, take measurements, diagram the experimental results, and share the regularities obtained by the group with the whole class.

To analyze the change in information utilization ability, we administered a questionnaire that included 10 items (four Likert scales) before (October 2-16, 2019) and after (December 23 and 24, 2019) this practice, referring to the scale of information utilization ability of the Ministry of Education, Culture, Sports, Science and Technology (2017b, see Table 1). The students' dialogues were recorded using Hylable (<https://www.hylable.com>), and the amount of each student's speech during the class practice was calculated individually (Figure 1).

First, to analyze the relationship between the amount of speech of students and their ability to use information, we classified the students so that the upper and lower groups of the amount of speech were equal in number. Second, to clarify the relationship between the amount of speech of individual students and their ability to use information pre-and post-class, a two-factor analysis of variance (with correspondence) was conducted.

Results

Table 1 shows the results of a two-factor ANOVA (with correspondence). The results showed significant intra-sample (pre and post) differences in Q2, Q3, Q4, Q5, and Q8. When focusing on the mean values, Q2 and Q3 were found to have significantly decreased, indicating that regardless of the amount of speech, students' recognition of obtaining necessary information from the Internet and gathering as much information as possible decreased through this practice.

Focusing on the mean values of Q4, Q5, and Q8, we found an upward trend. As a result of focusing on the simple main effect, Q4 was significantly improved regardless of the amount of speech. The results of Bonferroni's multiple comparisons showed that Q5 was significantly higher after the event ($M = 3.29$) than before ($M = 2.9$, $p < .01$). Whereas, Q8 was significantly different only in the lower speech amount group ($F(1, 135) = 5.64$, $p < .05$), and the results of multiple comparisons showed that it was significantly higher after the event in comparison ($M = 3.34$) to before the class ($M = 3.04$, $p < .01$).

These results suggest that students' recognition of collecting information on the Internet through this class is lower, but their recognition of using the computer to analyze the collected information in the form of tables and graphs may be higher than before the class. However, the post-test means of these items that showed significant differences were around the median value. Therefore, it can be seen that students went from a negative perception to an "undecided" perception. To improve students' recognition, it is necessary to create an environment where all students have their own tablet devices, and teachers should encourage learning activities such as creating and analyzing tables and graphs using computers.

Furthermore, we found that students with a high amount of speech were more likely to make choices based on the constraints and conditions of the task, while students with a low amount of speech were more likely to refer to the opinions of their teachers and friends.

This finding implies that students who speak less tend to rely on the opinions of others, which is contrary to the aspect of "independent" learning aimed at in the Courses of Study for Junior High School in Japan.

Table 1: Results of the questionnaire survey (two-factor analysis of variance)

Items	High speech amount group					Low speech amount group					F Value					
	pre		post			pre		post			Intra-sample (pre vs post)	η^2	Inter-sample (Amount of speech)	η^2	Interaction	η^2
	n	M	SD	M	SD	n	M	SD	M	SD						
Q1 I understand the information from the task by relating it to what I have studied and what I know.	69	3.25	0.67	3.41	0.60	69	3.32	0.63	3.28	0.66	0.81	.00	0.11	.00	2.47	.01
Q2 I use the Internet to get the information I need to tackle a problem.	69	3.46	0.76	2.55	1.13	69	3.36	0.71	2.58	1.02	55.01 **	.18	0.11	.00	0.33	.00
Q3 I collect as much information as I can to tackle a problem.	68	3.28	0.73	2.99	0.82	69	3.07	0.81	2.99	0.83	4.81 *	.01	0.96	.00	1.42	.00
Q4 I use a computer to analyze the information I have gathered to tackle a problem in the form of tables and graphs.	69	1.84	0.95	2.67	1.09	69	1.96	0.95	2.49	0.96	49.18 **	.11	0.04	.00	2.23	.01
Q5 I select and discard the information I have gathered to tackle a problem in light of the constraints and conditions of the problem.	69	2.91	0.90	3.29	0.71	68	2.93	1.00	3.12	0.82	11.07 **	.03	0.43	.00	1.18	.00
Q6 I find similarities and differences in the information I gather to tackle a problem.	69	3.01	0.93	3.33	0.72	68	2.88	0.86	3.21	0.72	17.05	.04	1.27	.01	0.00	.00
Q7 I prioritize and select methods and ideas for potential answers or suggestions.	69	3.10	0.89	3.25	0.83	68	3.13	0.88	3.13	0.79	0.61	.00	0.14	.00	0.61	.00
Q8 When deciding on a specific way to deal with a problem, I refer to the opinions of my teachers, friends, family, and acquaintances.	69	3.25	0.79	3.32	0.80	68	3.04	0.90	3.34	0.75	4.41 *	.01	0.72	.00	1.61	.01
Q9 I use a computer to compose a report or other document with specific answers or suggestions to a problem.	69	2.49	1.15	2.48	1.16	68	2.51	0.98	2.53	0.97	0.00	.00	0.06	.00	0.02	.00
Q10 When I make a mistake or things go wrong, I look back to see where the problem was.	69	3.14	0.77	3.33	0.68	68	2.93	0.78	3.16	0.70	8.76	.02	3.58	.02	0.11	.00

* $p < .05$; ** $p < .01$

Therefore, it is important to intervene to increase the amount of speech for students with low amount, for example, by providing individual feedback to students on the amount of speech after the class, or by visualizing the current volume of speech in a system so that it can be constantly checked.

We believe that the findings of this study provide important suggestions for understanding individual learning strategies and to consider how teachers should intervene in group activities. In the future, it will be necessary to analyze students' speech in detail to clarify how they used their knowledge of science and mathematics in problem solving in STEM education, and evaluate the products of their problem solving.

Conclusion

In this study, we implemented an interdisciplinary approach to STEM education using ICT and analyzed the relationship between changes in junior high school students' ability to use information and the amount of speech in class.

The results showed that students who spoke more tended to deviate towards "I choose the information I gather to tackle a task based on the constraints and conditions of the task," while students who spoke less tended to deviate towards "I refer to the opinions of teachers, friends, family, and acquaintances when deciding on a specific way to tackle a task."

In the future, we would like to analyze the process of integration of information utilization skills, science, and mathematics concepts and skills by focusing on the content of students' speech in classes where students use their own tablet devices. In addition, we would like to identify strategies for helping students acquire knowledge, skills, and the ability to use information in STEM education.

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Differences in the Motivation of High-GPA
and High-IQ Students

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Many studies demonstrated that academic motivation produced academic achievement. However, academic motivation was not shown to produce high-IQ, leading researchers to conclude that academic motivation and high-IQ were independent constructs (A.W. Gottfried, Cook, A.E. Gottfried, & Morris, 2005; A.E. Gottfried, 1990; A.E. Gottfried, & A.W. Gottfried, 1996; Lloyd & Barenblatt, 1984; Haywood, 2004, p. 236). Thus, children with high-IQs may lack academic motivation (Calero, García-Martín, Jiménez, Kazén, & Araque, 2007), yet have other motivations responsible for their precocious abilities. Roeper (1996) argued that gifted children were “driven by their inner agendas” (p. 18). This study employs the Miller Motivation Scale (MMS) to test for differences in the motivational profiles of high academic achievers ($GPA \geq 3.75$) and gifted subjects ($IQ \geq 130$). In the knowledge of the present author, no other study has utilized the MMS to study the motivational differences between these groups.

Hypothesis/Null Hypothesis

Hypothesis: Statistically significant difference(s) exist in the motivational profiles of high-IQ and high-GPA subjects using the MMS.

Null Hypothesis: No statistically significant differences exist in the motivational profiles of high-IQ and high-GPA subjects using the MMS.

Limitations

- Limited by the validity of the MMS, Wechsler Adult Intelligence Scale (WAIS), and Wechsler Intelligence Scale for Children (WISC).

- Test scores from WISC-III, WISC-IV, WAIS-III, and WAIS-IV are accepted to establish the gifted criterion ($IQ \geq 130$).
- WISC and WAIS scores from five years prior are accepted.
- For subjects under the age of 18, only those who are willing and receive permission from a parent or guardian may participate in the study.
- For subjects age 18, only those willing may participate in the study.
- Gifted students identified by the Salem-Keizer school district.
- GPA is used as a measure of academic achievement.

Delimitations

- Subjects of this study are limited to the Salem-Keizer school system of Oregon and its grading system.
- Subjects are high school students only.
- The MMS lacks norming on the general population.
- High academic achievers are taken through cluster sampling from two high schools of the Salem-Keizer school district.

Assumptions

- Test scores are taken as valid and tests as properly administered and interpreted.
- Data are taken as properly recorded and properly analyzed for statistical significance in differences in means.

Definitions of Terms

- Achievement – Based on Murray’s (1938) definition of achievement motivation as described by Myers (1992, p. 370), achievement is defined as significant accomplishment, the mastery of skills and ideas, or the attainment of a high standard.
- Gifted – In this study, gifted and high-IQ are used synonymously; ‘Gifted’ refers to a subject with an IQ at or above two standard deviations above the mean (≥ 130).
- Giftedness – Various competing concepts of giftedness exist, each of which defines giftedness by a unique set of attributes, such as high intellectual ability, task commitment, curiosity, creativity, superior memory, observational powers, and so forth (Heward, 2006, pp. 512-514). Giftedness may reasonably be regarded as precocious intellectual ability.
- High Academic Achiever – In this study, high academic achievement and high-GPA are used synonymously; ‘High academic achiever’ refers to a subject with a GPA at or above 3.75.
- Motivation – “Motivation is a force that energizes, sustains, and directs behavior toward a goal” (Eggen & Kauchak, 2007, p. 298). Academic Motivation motivates towards high academic achievement.

Abbreviations

- Miller Motivation Scale (MMS)
- Wechsler Adult Intelligence Scale (WAIS)

- Wechsler Intelligence Scale for Children (WISC)
- Academic Intrinsic Motivation (AIM) construct
- Intrinsic Intellectual Motivation (IIM) construct
- Talented and Gifted (TAG) program, Salem-Keizer school district

Review of Literature

Educational studies have demonstrated that the factors associated with academic success are quite different from the factors which are predictors of high-IQ. One of the most studied factors contributing to academic success is motivation. The Academic Intrinsic Motivation (AIM) construct, original to A.E. Gottfried, has proven valid and reliable in predicting student GPA, SAT scores, overall school success, and self-concept, as well as post-secondary success (A.W. Gottfried, Cook, A.E. Gottfried, & Morris, 2005; A.E. Gottfried, 1990; A.E. Gottfried, & A.W. Gottfried, 1996). AIM has proven a more reliable predictor of GPA than IQ; in fact, A.W. Gottfried et al. (2005) concluded that “gifted motivation” (as determined by the AIM scale) and gifted intelligence (as determined by IQ) are independent constructs whose “degree of nonoverlap far exceeds their degree of overlap” (p. 181). The Intrinsic Intellectual Motivation (IIM) construct, original to Lloyd and Barenblatt (1984), was similarly determined to be a predictor of academic success and an independent construct from IQ.

Haywood provided a seasoned opinion on the necessity of motivation for academic success. According to Haywood (2004), the results of forty years of research has demonstrated: “High achievers are more likely than low achievers (same age, sex,

IQ) to have intrinsic motivational orientation” (p. 236). Thus, Haywood has encapsulated the consensus that motivation is positively correlated with academic success, though not necessarily with IQ.

Gagné and St. Père’s study (2002) of over 200 high school females found no relationship between motivation and IQ: “The total lack of relationship between the students’ IQ and their motivational level is an important result of this study” (p. 93). However, in stark contrast to the above-mentioned studies, Gagné also concluded that little relationship exists between motivation and academic success:

Whether one uses an additive or a multiplicative model of the relationship between aptitude and motivation, motivation’s independent contribution to the prediction of scholastic or occupational achievement appears limited (p. 78).

A.W. Gottfried et al. (2005) criticized this conclusion on the basis that the studied population included only “a restricted group of high ability eighth-grade girls attending a select private school” (p. 174).

Predictors of high-IQ seem to be independent of academic motivation. A Chinese study (Chan, 2005) found family cohesion to be a significant predictor of high-IQ. A study by Runco and Albert (1987) concluded, “the parents of exceptionally gifted preadolescents are socially and intellectually effective” (p. 10). Both Albert and Runco (1985) and Chan (2005) found that family environmental factors predicted the areas of children’s gifted exceptionalities. These studies have clearly shown the positive association between parental influence and family environment with the engendering of gifted intellect in children.

Another possible causal agent in the engendering of intellectual giftedness was the so-called “crystallizing experience,” through which children’s view of their intellectual capacity is permanently altered.

Crystallizing experiences represent those moments in which an individual becomes aware of his or her own capabilities and comes to see the self in a new or different way. They are vivid and memorable phenomenal experiences that have an enduring impact on one’s life path. (Dai, Moon, & Feldhusen, 1998, p. 48). Through crystallizing experiences, intellectually gifted children begin to see themselves as very unique and extremely competent. This resultant boost in self-efficacy may mediate the furtherance of intellectual development. Certainly, the view that crystallizing experiences may have a causal relationship with giftedness was not mutually exclusive with the view that giftedness may be engendered by the family environment, especially given the observation that giftedness often occurs in talent areas which the family environment influences.

According to Roeper (1996), it is not merely the case that the gifted child perceives the self as unique, but in fact that the gifted child is unique. Roeper argued that the gifted child had different fundamental needs than the typical child. “Talented children are often driven by their inner agendas. They have a deep need to make sense of the world, to understand it and master it and make an impact on it” (p. 18). This fundamental need of the gifted child was qualitatively different from the academic intrinsic motivation of the academically successful student.

Although “inner agendas” may be difficult to operationalize, some quantifiable differences between gifted children and average-ability children may be observed. A

study by Calero, García-Martín, Jiménez, Kazén, and Araque (2007) demonstrated that gifted children (IQ>136) had better self-regulation abilities than typical children, which the researchers found to be associated with working memory and self-motivation.

Calero et al. (2007) made an important point, however, when they stated that gifted underachievers had “some sort of deficit not related to intellectual ability” (p. 329). Lacking was very likely academic intrinsic motivation; high-IQ underachievers may lack intellectual and emotional engagement in classroom instruction. Research conducted by Hoekman, McCormick, and Gross (1999) showed a negative correlation between tedium and intrinsic motivation in gifted students. Simply put, gifted students became bored.

A qualitative case study by Gross (1992) of five extremely gifted children (IQ 160-200) supported the conclusion that academic engagement was essential for producing motivation. These students suffered from a severe lack of motivation, as well as low self-esteem and peer rejection, before they were placed in an accelerated program. Positive results followed their participation: The children increased in motivation, general self-esteem, and social self-esteem.

Whereas academic motivation and success are rooted in the early grades and increase in stability over time (Gottfried, A.E., 1990; Graziano et al., 2007), the present author argues the importance of gifted children discovering academic engagement and maintaining their interest in academic success. This requires accelerated programs or novel creativity on the part of classroom teachers.

The present study endeavors to analyze the motivations of high-GPA and high-IQ students from a socio-emotional scale. According to A.W. Gottfried et al. (2005), considerable nonoverlap existed between academically motivated students and the

intellectually gifted. As described above, high-GPA students scored high in academic intrinsic motivation scales. In contrast, high-IQ students seemed to develop their giftedness directly from the family environment. Roeper (1996) described gifted children as having unique fundamental needs. Therefore, this study employs the Miller Motivation Scale (MMS) to determine if behavioral motivation differences exist between high-GPA and high-IQ students. In the knowledge of the present author, no other study has utilized the MMS to study the motivational differences between these groups.

Methodology

Restatement of Problem

Research has demonstrated that high-IQ students and high academic achievers are two separate, though overlapping, populations. This study will employ the Miller Motivational Scale (MMS) to test for differences in various motivational domains of gifted students ($IQ \geq 130$) and high academic achievers ($GPA \geq 3.75$). These domains are: Creative, Innovative, Productive, Cooperative, Attention-Getting, Power, Revenge, Give-Up.

Research Method

This study will analyze the data collected between two randomized samples from the same population. An ANOVA will be conducted using the means of eight domains between the groups. Statistically significant differences will be considered to suggest motivational profile differences between the populations.

Participants

Subjects are selected from the Salem-Keizer school district in the state of Oregon. In contrast with many other states, Oregon has a mandate to identify gifted and talented students. Oregon identifies gifted students under a number of definitions, which are: Intellectually Gifted, Academically Gifted, Specific Academic Areas, Leadership, Performing/Visual Arts, Creatively Gifted, and Potential to Perform at the 97th Percentile to be defined by the local school district (National Association for Gifted Children [NAGC], 2008). This broad definition allows for a large pool of gifted subjects.

The Salem-Keizer School system has an aggressive policy in identifying gifted and talented students. This includes teacher instruction on identifying underachieving gifted students. This measure is important in ensuring that the gifted population is properly represented at all academic levels: high academic achievers, low academic achievers, and all positions in-between. The Salem-Keizer School District is also a large district of 67 schools, including eight high schools, with a total student population of over 40,000. Because of the Salem-Keizer School system's large population and its commitment to identify all gifted students, this school system is chosen from which to select the comparison groups.

The criterion for gifted subjects in this study is an IQ of at least two standards of deviation above the mean ($IQ \geq 130$) on the Wechsler Adult Intelligence Scale (WAIS) for students age 17 years and older, or the Wechsler Intelligence Scale for Children (WISC) for subjects up to and including age 16. However, to provide some constraint on

confounding variables of a developmental nature, only high school students (grades 9-12) will be selected for the study.

Existing data suggests a high school total population of approximately 11,400 students in the Salem-Keizer school district. According to the distribution of the IQ normal curve, approximately 2% of these students will have IQs equal to or above 130, for a total gifted population of 228. It is predicted that the total population of Salem-Keizer's Talented and Gifted (TAG) program will be at least 228.

Fifty students from the TAG program will be randomly selected to take part in the study. Students who are willing and receive consent (if necessary) will be tested with the WAIS or WISC to see if they qualify for the study (i.e. if they have IQs equal to or above 130). Students who have already been tested and scored within that range will not have to retest, if the previous test was no more than five years prior. The process of random selection and IQ testing will continue until a total sample population of 50 is reached.

Because the number of randomly selected gifted subjects represents a considerable percentage of the estimated total gifted group (22%), proportional sampling of the high-GPA group is deemed inexpedient, since the total high-GPA group is predicted to be much larger. (Far fewer students have an $IQ \geq 130$ than a $GPA \geq 3.75$). As a result, 50 subjects from each group will be compared.

Because the high academic achievers population is predicted to be large, selection for the high-GPA group will be done through cluster sampling. Two of the eight high schools will be randomly selected to provide 25 high-GPA subjects, each of which will be chosen from their respective schools through simple random sampling. Note that it is

possible, though unlikely, for a student to be selected for both groups, high-IQ and high-GPA.

GPA's of 3.75 are considered adequate to demonstrate high academic achievement. The margin of imperfection allows some room for high achievers to receive Bs in gym or snap a coping saw in shop. Students who struggled to receive GPA's of 3.75 demonstrate high academic motivation, which is consistent with A.E. Gottfried's construct (1990).

GPA is chosen rather than standardized tests to demonstrate high academic achievement. State tests are not considered acceptable for this study. Like many other states' standardized tests since No Child Left Behind, the state of Oregon's standardized tests focused on reading, mathematics, and science. Teacher-assigned grades across curricula are expected to be a more reliable description of student ability than focused standardized tests.

Selection of Instruments

The WISC-IV (2003) and WAIS-IV (2008) will be used to determine IQ. These tests are consistent with one another and have gone through various revisions and re-norming. The WISC and WAIS will be administered by qualified psychologists. IQ scores from the WISC-III or WAIS-III, from students previously tested within 5 years prior, will be accepted.

The MMS (1988) determines the motivational profiles of subjects on eight different domains: Creative, Innovative, Productive, Cooperative, Power, Attention-Getting, Revenge, and Give-Up. Subject responses are as follows: (a) Very much like

me-I always do this or feel this way, (b) Mostly like-often like me, (c) Somewhat like me, (d) A little like me, (e) Not very much like me-I rarely do this, and (f) This does not apply to me-I never do this. The MMS received criticism primarily because of its absence of norming on the general population, although it received some praise for the correlation of its Creativity subscale with other tests and for its legitimate attempt as a psychometric test (Roszkowski, 2004; Educational Resources Information Center [ERIC], n.d.). Of particular interest to this study are the Creativity and Innovation subscales, since these domains are considered to be especially characteristic of gifted students. Furthermore, the attention of the MMS to personal affect presents motivation from a socio-emotional perspective and therefore is more holistic than the more-studied tests on academic motivation.

Data will be collected and means calculated using Microsoft Excel. Statistical analysis will be performed using MYSTAT 12.

Procedures

Gifted subjects ($IQ \geq 130$) and high academic achievers ($GPA \geq 3.75$) will be randomly selected from the high school population of the Salem-Keizer School District in Oregon. A total of 50 gifted subjects will be randomly selected for the gifted test population. A total of 50 high academic achievers will be randomly selected through clustered sampling from two of Salem-Keizer's eight high schools, 25 from each school. In the case that 8th grade GPAs are not available for freshmen students, the selection of high academic achievers will occur in the Spring to allow for at least two grading cycles.

The 160-question MMS will be administered during and after school hours by the researchers, according to the availability of the subjects. The MMS is a computerized test which requires 20 to 30 minutes to complete. School computer labs will be accessed to expedite the testing when available.

Data Collection and Analysis

Scores will be collected from all subjects for each of the individual eight domains. Mean scores will be calculated for each domain for the gifted and high academic achievement groups. An ANOVA will be conducted using the means of the eight domains between the two groups. Tests will be conducted at a 95% level of confidence ($p \leq .05$).

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HIEC 2022 CONFERENCE

Two-Eyed Seeing for Both Ways Knowing: Bridging Indigenous and Western Ways in Environmental Stewardship

Presentations Type: Work-in-progress report

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HIEC Themes to be addressed: Indigenous Education & STEM Education

In this work-in-progress presentation we share outcomes of a first-year pilot Indigenous youth and community land-based learning and culture stewardship program. The goal of this work is to engage Indigenous youth in STEM through land-based culturally relevant summer camps. We present outcomes of our summer pilot focused on three community driven themes of bridging cultures between Indigenous and Western Ways of approaching: a) invasive species, b) water quality and, c) ecological perspectives.

HIEC 2022 CONFERENCE

Michelle M. Hogue (PhD)

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Two-Eyed Seeing for Both Ways Knowing: Bridging Indigenous and Western Ways in Environmental Stewardship

Presentations Type: Work-in-progress report

Abstract

Recently, environmental monitoring approaches are called for greater inclusion of Indigenous Traditional Ecological Knowledge (TEK) alongside 'Western' or 'conventional' scientific knowledge. As such, ecological restoration and monitoring depend on effective coordination of science and traditional ecological knowledge that can contribute to adaptive management and policy decisions. The focus of this initial pilot project was to co-develop a co-management plan to engage Indigenous youth to connect back to culture through land-based learning, working with mentors and elders and ultimately bridge cultures to Western science and mathematics. A research team of Indigenous and non-Indigenous graduate and undergraduate university students were trained in a variety of environmental informational domains such as: project functionality, environmental monitoring techniques, cultural sensitivity, geographical and landscape assessment, and community engagement. Elders were included to oversee cultural protocol, appropriate data collection, storage, and access, as well as be a resource of traditional knowledge. The program was co-developed, housed, and operated through Piikani Traditional Knowledge Services (PKTS) center, an inclusive community space, so that all had equitable access. The trained team then led three summer camps focused on: a) invasive species, b) water quality and, c) ecological perspectives, with the expressed goal of engaging community youth in Indigenous Land Stewardship (ILS). The ultimate goal is to for Indigenous peoples and non-Indigenous allies to co-design, co-develop, co-create and co-share programming that will build Indigenous capacity in land and cultural stewardship. In this work-in-progress presentation, we share outcomes of this first-year pilot program focused on the Piikani Nation which will serve as a framework to be extended to the other Blackfoot Confederacy Nations and perhaps more broadly to those interested in working in the Indigenous-Ally space.

HIEC 2022 CONFERENCE

Engaging Indigenous Learners in STEM through Bio-cultural Land-based Learning and Environmental Monitoring

Presentations Type: Paper Presentation

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HIEC Theme to be addressed: Indigenous Education & STEM Education

We propose that land as textbook and land-based learning serve to engage Indigenous learners in STEM in ways that are culturally relevant and attend to Indigenous Ways of Knowing and Learning. We present outcomes of our Community-based biocultural and environmental monitoring program as a model for such engagement and a way to build capacity by bridging cultures between Indigenous and Western ways of knowing and learning.

HIEC 2022 CONFERENCE
Michelle M. Hogue & Ira Provost

Engaging Indigenous Learners in STEM through Bio-cultural Land-based Learning and Environmental Monitoring

Presentations Type: Paper Presentation

Abstract

Traditionally, Indigenous ways of knowing and learning (IWKL) are relational, hands-on, and practical and knowledge is passed on orally through story, language, ceremony, and traditional practice. This way of learning often creates a challenge for Indigenous learners in the traditional Euro-Western system of compartmentalized, theory-first and written methodological approaches to teaching and learning. One key challenge to success for Indigenous learners in the Western system is the unspoken requirement to leave culture and ways of knowing and learning at the education door, in order to “*fit into*” the dominant paradigm. Nowhere is this truer than in the sciences and mathematics; entrenched disciplines with little flexibility for different approaches to teaching and learning or ways of knowing. The inflexibility and superiority attitude are paramount reasons Indigenous peoples drop out of the science and mathematics subjects early in their academic journey which then precludes them from entering into science and mathematics related academic paths in higher education. The result is the critical under-representation of Indigenous people in science, technology, engineering, and mathematics (STEM)– related professions at all levels. In order to build Indigenous capacity in STEM, we need to enable engagement, success, and retention in science and mathematics early and in culturally relevant ways that attend to IWKL. The land as textbook and curriculum serves as a culturally relevant door to Indigenous engagement in STEM particularly when the approach is inclusive of traditional Ecological Knowledge (TEK) and IWKL. Land-based learning through environmental monitoring is hands-on practical learning-by-doing and as such attends to IWKL. It engages Indigenous youth and bridges cultures between Indigenous and Western ways of knowing and learning. In this presentation, we present outcomes of our Community-Based Environmental and Biocultural Monitoring Program – and illustrate how we as educators and curriculum developers might use land-based learning and environmental monitoring to engage and retain Indigenous learners in the sciences and mathematics such that they persist in the STEM subjects and are ultimately afforded the same opportunity to enter into STEM-related academic pathways as non-Indigenous learners. Our approach is through Two-Eyed Seeing for Both Ways Knowing (TES for BWK).

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- 5. Abstract:**

With so much misinformation being shared through media outlets and social media, it is important that students develop critical thinking skills. It is also important that students understand how data is being used, or misused, to back invalid or unfounded arguments. To that end, a general education course was developed to merge two skills sets: critical thinking and data analysis. This paper will review the success of this course in meeting its initial outcomes.

Introduction

The expanding influence of media outlets and social media has led to an abundance of information that is widely shared and often poorly controlled. Made to look like legitimate news stories, this information is often used to promote the agenda of its originator (Nasir, Shan, & Varlamis, 2021). Yet, to the untrained eye, the information can appear to be newsworthy and truthful. Furthermore, these stories often appear to be backed by data which is meant to heighten their legitimacy in the eyes of readers (Kahn, Michalas, & Akunzada, 2021).

The value of teaching critical thinking skills to undergraduates has long been recognized (Ku, et al., 2019). What has changed, however, is that, in our digital and increasingly data driven world, there is a need to augment critical thinking courses with data analysis skills. There is not just a need to teach students how to recognize arguments as valid or invalid but there is also the need to teach scientifically supportable data skills (Schmaltz, Jansen, & Wenckowski, 2017). This will provide students with the ability to question the data analysis methods that might be used in support of a weak or invalid argument.

To that end, a general education course that combined critical thinking and data analysis skills was created as part of the new suite of general education courses that were rolled out two years ago at Central Washington University. The course was called Seeing Through the Data and it was intended to provide students with skills to assess the quality of arguments, even ones that appeared to be substantiated by data. The original outcomes of the course were:

1. Define big data and analyze its influence on the internet, social media and society.
2. Describe sources and formats of data and how it can be prepared for analysis.
3. Implement quantitative strategies to use data for optimization, forecasting, classification, and prediction.
4. Evaluate the quality and validity of data used to support a claim or argument.
5. Construct and deliver effective presentations of data-informed conclusions to a specific audience.

This course has now been run, quarterly, for two years. This paper will be an analysis of the quality of the course and how well it has been able to achieve its outcomes. The initial section of the paper will describe, specifically, how the course was constructed. This will be followed by a review of both student and faculty opinions on the overall quality of the course. Student reviews were extracted from the course evaluations. The faculty reviews were gathered via a survey of instructors who have taught the course.

Outline of the Course

Offered in a ten-week quarter, the course consists of ten modules. Each module includes a blending of critical thinking and data analysis skills. All topics are shown in table 1 below.

Table 1

The Weekly Course Layout

Module	Critical Thinking Topics	Data Analysis Topics
1	Introduction to critical thinking	Overview of Microsoft Excel and an introduction to descriptive statistics
2	The data revolution and the dangers of datafication	Intermediate Microsoft Excel and the measures of central tendency
3	Data, information, knowledge and wisdom and the nature of knowledge	Charts and graphics in Excel, correlation, and outliers
4	The research process and when research goes wrong	Optimization using Solver in MS Excel
5	The misuse of data	Additional work on optimization
6	The misuse of statistics	Predictive Analytics and simple linear regression
7	Data in politics	Time series analysis and forecasting
8	Big data for media	Comparing means
9	Big data and privacy concerns	Clustering and classification
10	Final paper – Doing statistics better	Final data project

An initial introduction to critical thinking skills was offered at the start of the course and then, in the following weeks, these skills were reinforced by looking at the nature of knowledge and the way the media is reporting on current, relevant topics such as climate change, politics, data and privacy. On the data side, the course began with introductory lessons on Microsoft Excel to lay a foundation to build upon as more advanced data skills are covered.

Textbook

Part of the initial intent of this course was to show students how data and statistics can be used, or manipulated, in support of weak arguments. It was important to show that arguments that include data and/or statistics are far more open to the reader's interpretation than students may have initially thought. To that end, the text selected for this course was Spiegelhalter's *The Art of Statistics: How to Learn from Data*, published in 2019. Its content, presented in an entirely accessible format, was a very good match for the purposes of the course.

Critical Thinking Skills

The early modules were designed to help students develop and refine critical analysis skills by first establishing a common understanding of critical thinking and then having them consider issues of datafication and the nature of knowledge. One of the primary goals of these modules is to get students to consider the potential downfalls of reducing individual characteristics to quantifiable categories and metrics; they need to consider the qualities that are lost in the datafication process. In addition, these early modules ask students to consider the relationship

between data, information, knowledge, understanding and wisdom to understand the nature of knowledge and how it evolves.

To further reinforce and expand critical analysis skills, most of the later modules included topics that are frequently discussed in social and mainstream media. For example, students often hear about research reported in the popular media so they were asked to consider questions such as: What is really going on in these studies? How are they set up? How does one separate good from bad research? And what are we to make of the conclusions?

Another useful topic for considering bias, that is reported in the popular media, is climate change. By dissecting arguments against climate change, students can gain a better understanding of how they are built and how these arguments use fallacy, data, and statistics to make what looks to be a credible case. This section of the course examined the practices of using fake experts, logical fallacies, impossible expectations, cherry picking and conspiracy theories to discount or discredit the science behind climate change and construct seemingly legitimate arguments intended to refute the science (Cook, 2020). Beyond the topic of climate change, the process of dissecting faux arguments proved to be useful in helping students understand how pundits put forward positions that on the surface appear credible but, in truth, are well masked fallacies, often supported by data and statistics.

The discussions of the arguments against climate change led to discussion about the misuse of both data and statistics. These exercises aligned well with the work being done on the data analysis side of the course, but it also led to a discussion of how large data sets are being used to manipulate public opinion. That led to an important exploration of how large data sets are used in politics. Through correlation and predictive analytics, campaigns are now able to use data to identify like-minded citizens who don't vote. Campaigns are now shifting their efforts to motivate these non-voters by focusing on divisive issues that they care about. No longer do campaigns need to focus on the middle. Their better effort is to raise issues that divide and motivate in order to increase the number of their supporters who will actually vote (Illing, 2017).

The critical thinking side of the course finished up by looking at how media companies are using big data and how that is leading to concerns about privacy as more personal data is gathered and used (Kantarcioglu & Ferrari, 2019). The final project in the critical analysis part of the course asked students to write a well-supported position paper asking them how data and statistics can be better used to accurately represent the world around them.

Data Analysis Skills

This course used Microsoft Excel as the only data analysis tool. Most students have easy access to Excel and the Data Analysis plug-in provided ample analytics tools for the purposes of the course. As indicated above, the early modules focused on ensuring sufficient exposure to Excel to set the groundwork for later work.

Starting in module 3, students were given opportunities to learn and practice several analysis tools that are often used with data to back the kinds of arguments that students studied in the critical analysis section. Among these tools were correlation and its differentiation from causation. It is key for students to understand how correlation is substituted for causation and why that is not valid. The later modules focused on optimization, predictive analytics, time series analysis and forecasting, and the comparison of means to determine if two (or more) groups were different in a meaningful way. Examples were given to show how these tools are used in popular media to either inform or manipulate and why it is important to question conclusions even if they look to be backed by data and statistics.

In alignment with the discussions on big data and its use, the data analysis section of the course concluded with exercises that discussed clustering and classification. Since Excel is not the best application for such analytic tools, these modules focused conceptually on clustering and classification providing examples of how and when they could be used. In the final project for the data analysis section students were provided a data-related scenario that utilized the well-known Boston housing data set and were asked to conduct analysis on the data to address the questions raised in the scenario.

Student Response

Since its introduction, the course has been run 19 times and is usually full with 25 students. At the end of each class, students are asked to complete course evaluations and while the validity of course evaluations are often questioned due to response rates and other factors (Flaherty, 2020), the approach used to improve the usefulness of the evaluation of this course was to aggregate all 19 collections of evaluations and look at the responses to key questions having to do with content and delivery. For each question, there was ~220 responses which represented about a 50% response rate.

Table 2 below shows student response rates to a small collection of evaluation questions. Students were asked to indicate their agreement with each statement on a scale from 1 – 5 corresponding with the range of strongly disagree to strongly agree. Table 2 shows the mean, standard deviation, and the number of responses followed by the percentage of respondents for each level of agreement.

The student responses were largely positive indicating a few key things. Students felt that faculty were engaged, fair, and respectful and that there was clarity around how the course activities related to and reinforced the content. There was also a positive response to the use of different instructional methods which was encouraging given the complexity of the modules and the many different resources that were included to reinforce the critical analysis content. Lastly, students felt that the course challenged them to think critically which was one of the primary goals.

Table 2

Aggregate Student Responses to Key Evaluation Questions

Question	Mean	StDEV	N	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Instructor was actively engaged in the class.	4.57	0.77	221	74.21	22.62	7.24	1.81	0.9
Instructor fostered a fair and respectful learning experience.	4.65	0.64	225	76.89	24	5.33	0.44	0.44
The course objectives were clearly communicated.	4.59	0.71	221	73.76	26.24	5.88	0.9	0.9
The instructor used online technologies to facilitate interaction among students and with the instructor.	4.55	0.73	220	70	30.91	4.55	0.91	1.36
The instructor used a variety of methods, as needed, to make content clear.	4.53	0.76	220	69.55	59.55	6.36	0.91	1.36
The assignments and tests were connected to the course content.	4.59	0.71	220	73.64	26.82	5.45	0.91	0.91
The course activities challenged students to think critically.	4.62	0.65	219	75.34	25.57	5.94	0.46	0.46

Instructor Responses

To get instructor attitudes toward the course, a brief survey was used that asked three questions. First, the faculty were to examine each of the five course outcomes and provide their opinion about the extent to which each outcome was covered in the course. Responses were on a Likert scale of 1-5 with 5 representing the opinion that the outcome in question was very well represented in the content of the course. These responses are shown in table 3 below. The second question asked instructors what changes they would recommend in order to make the course content more aligned with course outcomes and the third question asked instructors what changes they would make to the course outcomes.

Table 3

Responses to instructor question one – To what extent do you think each course outcome is addressed by the course – Seeing Through the Data?

Outcome	Min	Max	Mean	Std. Dev
Define big data and analyze its influence on the internet, social media, and society	4	5	4.6	0.49
Describe sources and formats of data and how it can be prepared for analysis.	3	5	4.2	0.75
Implement quantitative strategies to use data for optimization, forecasting, classification, and prediction.	3	5	4.2	0.75
Evaluate the quality and validity of data used to support a claim or argument.	3	5	4.6	0.80
Construct and deliver effective presentations of data-informed conclusions to a specific audience.	3	4	3.6	0.49

While the instructor responses indicate that the outcomes are well represented in the course, it is the fifth outcome, focused on the construction and delivery of data-informed conclusions, that deserves attention. This is further outlined in the instructor responses to the latter questions shown below.

Responses to the second questions yielded useful information to consider when revising the course.

Responses to Instructor Question Two

Q2: What changes might you recommend that would make the course content more aligned with the course outcomes?

- *The only changes needed, in my opinion, are a few updates to the original course to make it more current and different data sets to help minimize plagiarism. The content itself meets the outcomes.*
- *Have students make a video presentation about a set of data and incorporate charts and other visualizations to "defend" a particular topic. The discussion board has not been as effective in learning about the various topics of big data, etc. The current quarter especially. Students are not participating or only providing minimal narrative, even with prompts from me. I like the discussion where they need to evaluate the integrity of the data and the visualization. This might work for the video presentation type of assignment.*
- *Incorporate hands-on exercises with data segmentation tools beyond excel, such as Power BI or Tableau or any other*
- *I found the course to be very well put together. A suggestion would be to add more in the area of data presentation*

- *Not sure how to do it but would love to see the addition of power pivot - where you can pull information from the web, or from other databases – that would give them a feel for big data.*

The last question yielded fewer responses, all of which were content related and did not really suggest any changes to the outcomes.

Responses to Instructor Question Three

Q3: What changes might you make to the course outcomes?

- *None*
- *Not sure we need to change the outcomes. I would like to see some additional technology skills. Basic Data analysis using data tables, pivot tables, or power pivot. Unfortunately, it comes down to the amount of time we have in a quarter. I love this course.*
- *I have made changes that seem to be increasing student engagement in the class: aligned course content to the textbook and also incorporated more examples from most pressing issues of our times (pandemic). I recommend changing the final project data file into something more relevant to today's pressing needs.*
- *None*

There appear to be a few key issues, suggested by faculty, that, if addressed, would improve the course and lead to better outcomes for students. The first is to include opportunities for students to analyze data sets and make supported and defensible presentations to their peers. This could lead to more authentic and usable learning for students. Second is the need to include more work with analysis tools that students are more likely to encounter. While correlation and predictive analytics are common tools, clustering and classification may be less so. It may be better for students to focus on more common and applicable tools such as pivot tables, power pivot, Tableau or Power BI. Lastly, the course could be adjusted to encourage more direct student participation and engagement. There is also the need to update some of the content since the class is two years old and some of the issues selected for the critical analysis section are a bit out of date. Currently, the course includes nothing about the global pandemic and that would be rich source of topics to analyze in both the critical analysis and data sections.

Conclusion

The intent of this course was two-fold: Increase critical thinking skills and teach useful data skills to help students question weak arguments even if they appeared to be backed by legitimate data. In an era of fake news, also known as post-truth journalism (Ku, et al. 2019), it is more important than ever to equip students with the skills to recognize and refute poorly constructed news stories that are primarily intended to manipulate popular opinion.

Initial indicators show some success. Reception of the course by students appears to be positive and faculty have been an active part in providing suggestions for course improvement. There remains some work to be done in assessing outcomes against student artifacts which will be completed during the current academic year.

Due to its unique blend of critical thinking and data analysis skills, this course will continue to play an important role in the university's general education program. The volume of information that students encounter in popular and social media highlights the importance of providing refined critical and data analysis skills as we work to prepare well-rounded graduates in all fields.

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Role-playing Type Utilizing STEAM'S Development of Robot Education Content

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ABSTRACT

In this paper, we propose STEAM'S, which adds Society to STEAM education. In STEAM'S, students think about concrete solutions to the problems of modern society from the perspective of science, technology, engineering, art, and mathematics, with the aim of eliciting interest in society and cultivating the ability to think about concrete solutions to problems in the real world that will be necessary in the future.

As a concrete example, we have developed robot training materials that implement real-world occupations by using robots conventionally used in STEAM education. In the face-to-face class, PLEN (PLEN Project Company Inc.) is used as the robot, and Scratch is used as the development environment. In the online class, Pepper (SoftBank Robotics Corp.) is used as the robot, and Choregraphe is used as the development environment.

In Step 1, specific development cases are presented to the students to help them understand the goal of the development. In Step 2, the students actually create prototypes and learn how to use the robot and the development environment. In Step 3, the students plan the flow of robot control according to the selected scene. In Step 4, the students actually program the robot according to the plan. In Step 5, the students present their models and critique each other's work. In Step 6, each participant present his/her model and critique each other's work. The role-playing type robot teaching material is intended for junior and senior high school students, and is supposed to be implemented in groups. In the implementation, the class was built in accordance with the government course curriculum guidelines in Japan.

The ARCS evaluation by high school teachers is conducted as an expert evaluation of the above. The implementation of familiar occupational scenes on the robot in accordance with this teaching material will foster students' interest in society and help them develop problem-solving skills in the real world.

1 INTRODUCTION

1.1 Background

The society to be realized in Society 5.0 is expected to overcome challenges and difficulties by connecting all people and things through IoT, sharing various knowledge and information, and creating new values that have never been seen before. At the same time, people's work styles and lifestyles are changing due to the rapidly changing society. As a result of these changes, it is highly likely that in 10 to 20 years, half of the work done by people will be automated, and at the same time, the need for information technology such as ICT is increasing. In the midst of this transition in social structure[1], Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) has revised the Courses of Study. In the new Courses of Study, students will be required to have the ability to collect, organize, compare, transmit, and communicate information using computers and other information means in an appropriate manner, as well as qualities and abilities related to basic operating skills, programming thinking, information morality, information security, and statistics. In addition, programming education is being implemented in elementary schools, junior high schools, and high schools. Programming education uses educational materials that utilize STEAM education, which is an educational philosophy that adds creativity education to science and mathematics education covering the five domains of science, technology, engineering, art, and mathematics.[2] STEAM educational materials include LEGO® Mindstorms® EV3, which is sold by LEGO®, and "scratch," an educational programming language jointly developed by MIT and the Scratch Foundation [3].

In this research, we will use "scratch" to develop "role-playing robot educational contents" in line with the educational philosophy of STEAM'S.

1.2 STEAM'S

Conventional STEAM education is a learning method to solve problems related to the fields of Science, Technology, Engineering, Art, and Mathematics by integrating knowledge and ideas specific to each subject and domain. STEAM'S is a combination of STEAM and Society, which refers to modern society. The aim of STEAM'S is to provide concrete solutions to the problems of modern society by focusing on a better society, to learn skills that will be necessary in the future through actual experience, to draw out interest in society, and to develop the ability to think.

2 Role-playing Type Robot

The flow chart of the role-playing type robot teaching material is shown in Fig. 1. In Step 1, the students are shown a concrete image (prototype) to understand what to make. In Step 2, they actually make the prototype and learn how to use "scratch" and the robot. In Step 3, the students will think about the uses of the robot and conduct a job survey. In Step 4, the students will think about the use of the robot and conduct a survey of possible occupations. In Step 5, the students will plan the flow of the robot control. In Step 6, the students will create the planned control using "scratch".

The role-playing robot is intended for junior and senior high school students, and the number of students is assumed to be a group. The estimated class time is shown in Figure 1. The duration of the class is 45 minutes per session.

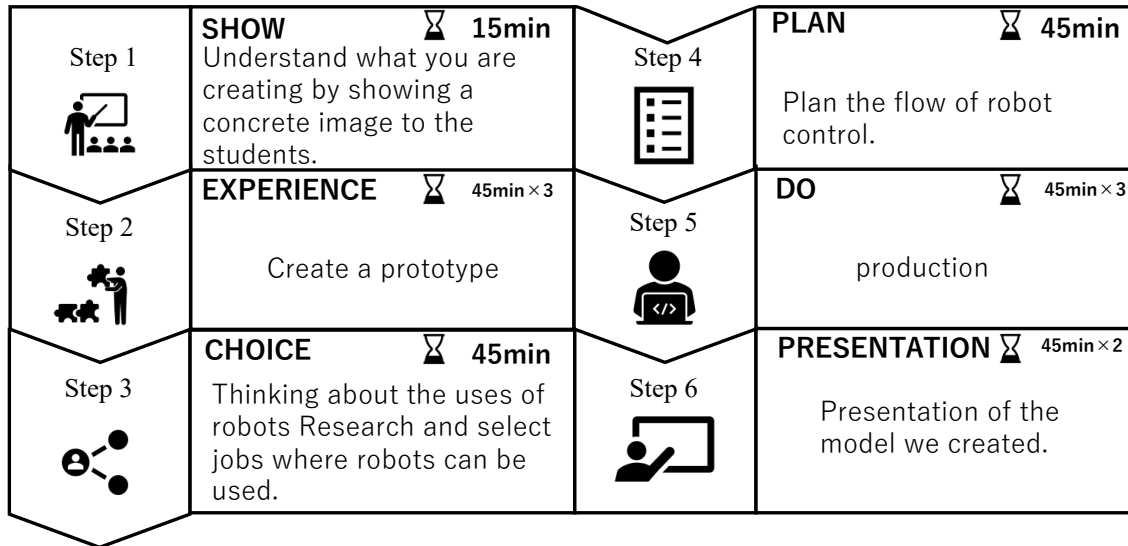


Fig. 1 Flow diagram of role-playing robot teaching materials

3 ACQUISITION PART

3.1 Preparation equipment

To create a role-playing type robot teaching material, we used the programming language "scratch" for voice recognition and conversation. In addition, we used the programming language "scratch X"[4] to control the robot via serial communication. The code used in this project is shown in Figure 2.

“PLEN D” [5] developed by DMM.make ROBOT, which is capable of serial communication, was used for the robot. The motion list of PREN.D is shown in Table 1.

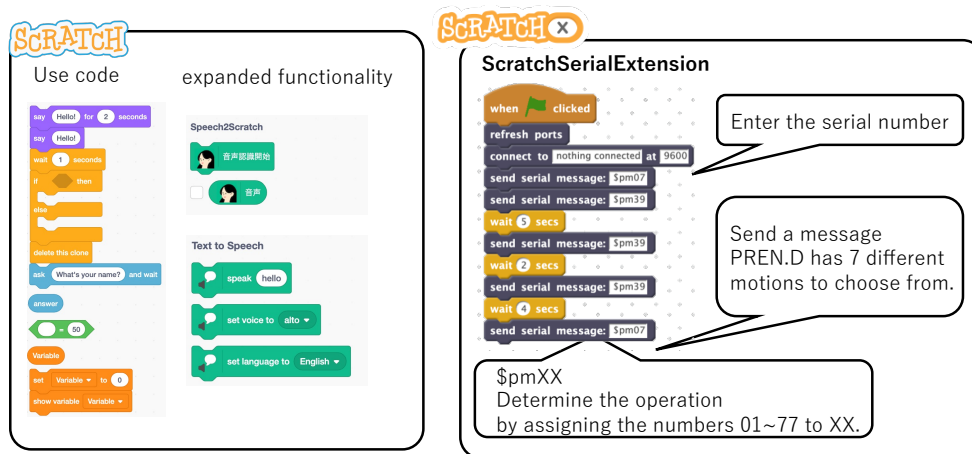


Fig. 2 Use code

Table 1. PREN.D motion list

No.(dec)	name	No.(dec)	name	No.(dec)	name
1	LStep	27	Keeper Defense RStep	53	Balance on RFoot
2	FStep	28	LKick	54	Heel & Toe LFoot
3	Get Up (Face Down)	29	Long Dribble	55	Brake for Back
4	RStep	30	RKick	56	Heel & Toe RFoot
5	A-hem	31	Pass to Left	57	Walk Forward
6	Get Up (Face Up)	32	Lift & LKick	58	LTurn
7	Bow	33	Pass It to Me!	59	Walk LDiagonally
8	Propose	34	Pass to Right	60	RTurn
9	Hug	35	Lift & RKick	61	Walk RDiagonally
10	Clap	36	Dance LStep	62	Walk Back
11	High-five	37	Dance FStep	63	Carry Forward
12	Shake a Box	38	Dance RStep	64	Carry LTurn
13	Pick Up High	39	Dance Finish Pose	65	Carry RTurn
14	Pick Up Low	40	Robot Dance (Mirror)	66	Carry Back
15	Receive a Box	41	Dance Up & Down	67	Skating Forward
16	Present a Box	42	Handclap	68	Skating LTurn
17	Pass a Box	43	Wiggle Dance	69	Skating RTurn
18	Throw a Box	44	Robot Dance	70	Skating Back
19	Toss a Box	45	Dance BStep	71	Deep Breathing
20	Put Down High	46	Dance Bow	72	Relax (Mirror)
21	Put Down Low	47	Twist Dance	73	Relax
22	Put Down & Stretch	48	Ina Bauer LFoot	74	Sneeze!
23	Defense LStep	49	Brake for Forward	75	Stretch
24	Keeper Defense LStep	50	Ina Bauer RFoot	76	Get Up (Face Up)
25	Dribble	51	Balance on LFoot	77	Get Up (Face Down)
26	Defense RStep	52	Upright		

3.2 Prototype

We used “Pepper”[6], which is used in sushi chain restaurants, as a prototype. Figure 3 shows an example of the use of Pepper in a sushi chain restaurant. Pepper plays three main roles: confirming the number of customers, confirming the table (counter or table seating), and guiding the customers to their seats. This series of actions is used as a model, and the robot motion control and dialogue control are separately controlled. Figure 4 shows the flow diagram of the voice dialogue and robot control. The control according to the flow diagram was used as the prototype.

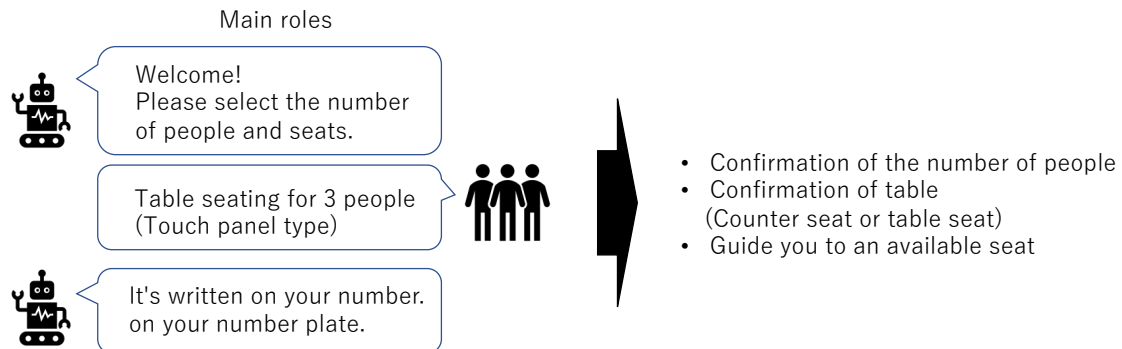


Fig. 3 An example of Pepper's use in a sushi chain restaurant

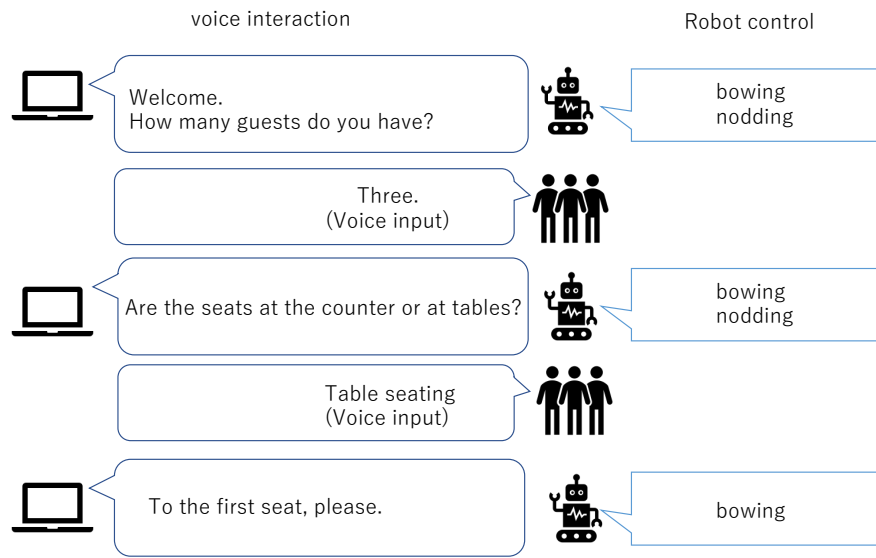


Fig. 4 Flow diagram of spoken dialogue and robot control

3.3 Text

In order to conduct the class, we have created a programming textbook.

In the textbook, students learn about voice interaction, variables, conditional branching, robot control, and finally create a prototype.

4 Evaluation

4.1 Comparative evaluation with the Japanese Courses of Study

We evaluated whether the materials we created this time fit the aims of programming education as required by the Japanese Courses of Study. Table 2 shows the comparison results. The results of the comparison show that all the objectives were met.

Table 2. A comparison between the aims of programming education and what is required in the Japanese Courses of Study

Study guide	this educational material
Ability to use information	○
Practical ability to use information (basic operation of ICT, information collection, organization, and dissemination)	○
Understanding of the chemistry of information (programming)	○
Attitude to participate in the information society (information morality)	○
Programming-oriented thinking	○
Functions and advantages of programs	○
Information society	○
Knowledge and skills	○
Ability to learn and human nature	○
Ability to think, judge, and express	○

4.2 ARCS Model Evaluation

The ARCS model of evaluation is a model for improving motivation to learn proposed by educational psychologist John Keller in 1983.[7] The contents of the ARCS model evaluation are shown in Table 3.

Table 3. PREN.D motion list

Aspect of caution	
A1	Perceptual arousal: What can be done to capture the learner's interest?
A2	Stimulating the spirit of inquiry: How can we stimulate the attitude of inquiry?
A3	Variability: How to maintain the learner's attention
Aspects of Relevance	
R1	Familiarity: How can we connect learners' experiences with the material?
R2	Objective Orientation: How can we relate the material to the learners' objectives?
R3	Motivational match: When and how to relate learning styles and interests of the learning group to the material.
Aspects of Confidence	
C1	Learning needs: How can we help learners develop positive expectations for success?
C2	Opportunities for success: How learning experiences support or enhance learners' beliefs about their own abilities.
C3	Personalizing control: How learners can be convinced that their success is due to their own efforts and brain power
Aspects of satisfaction	
S1	Intrinsic reinforcement: How can we promote and support the inherent enjoyment of the learning experience?
S2	Extrinsic rewards: What rewarding consequences do we offer for learner success?
S3	Fairness: How can learners feel that they are being treated fairly?

4.3 ARCS evaluation by current teachers

An evaluation of the ARCS model was conducted with current high school teachers. The evaluation results are shown in table 4. In the category of attention and relevance, the teachers gave high marks, but in the categories of self and satisfaction, the teachers gave slightly lower marks. As for the opinions, the review of the text and the difficulty of communication with the robot were mentioned, but the overall evaluation was high.

Table 4. Evaluation Results

Evaluation Items		evaluation	ARCS Classification	ARCS Classification Name
1-2-3-4-5				
trivial	— Interesting	4	A	Caution
fell asleep	— Doesn't make me sleepy	3	A1	perceptual arousal
Doesn't pique my curiosity.	— be inquisitive	5	A2	Stimulating inquisitiveness
conventional	— It was so varied	3	A3	variability
Not worth it	— It was challenging	5	R	relevance
Not my problem	— It has something to do with me	5	R1	friendliness
Unimportant content	— What you want to learn	4	R2	Consistency with motive
The process has been fun	— The process is fun	3	R3	goal-oriented
lacking self-confidence	— I feel more confident	3	C	self-confidence
Vague goals	— The goal is clear	5	C1	learning requirement
I couldn't keep up with my learning	— Steady progress in learning	2	C2	Opportunities for Success
I couldn't devise my own	— I can be creative in my own way	3	C3	Personalization of Control
It left me dissatisfied	— I'm glad I did	4	S	feeling of satisfaction
Not available immediately	— It'll be ready to use	2	S1	Natural consequences
Even if you could, they wouldn't recognize you	— If you can do it, they'll recognize you	5	S2	Positive results
The evaluation was inconsistent	— The evaluation was consistent	2	S3	impartiality

5 CONCLUSION

In this paper, we proposed STEAM'S as a new educational model. In addition, we developed a teaching material "role-playing type robot education contents" in line with the STEAM'S educational system, compared it with the Courses of Study, and conducted ARCS evaluation by current high school teachers. The future prospects are shown below.

- We will have students actually use the robot and evaluate it.
- Serial communication will be made easier.
- The robot's motion programming and dialogue programming are separate, so they should be combined.
- Change the robot to be able to use voice recognition and synthetic voice.

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- [6]SoftBank, <https://www.softbank.jp/robot/pepper/>
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TITLE:

Targeted Interventions for Gifted Students with ASD

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ABSTRACT

Overview: Although recent studies have focused on the identification of students who are gifted and who have ASD (Burger-Veltmeijer, Minnaert, & Van den Bosch, 2015) and on the learning experiences of these students (Wu, Lo & Tsai, 2019, and Cain, Kaboski & Gilger, 2019), there appears to be a gap in the research regarding effective interventions for these students. Like other twice-exceptional students, students who are gifted and who have ASD face unique challenges in school. On the one hand, they have great academic potential, but on the other hand, they have difficulties navigating the social interactions that are an essential part of school life. In addition, teachers often focus more on remediation of ASD-related deficits than on nurturing the academic potential, which can lead to frustration and anxiety for the students (Wu, Lo & Tsai, 2019).

This poster presentation describes and evaluates the targeted interventions that were designed to address the specific needs of a 9-year-old male BIPOC student, who had received an

ASD diagnosis at age 3, and who was subsequently identified as highly gifted at age 7. The case study provides practitioner evidence of specific interventions as well as an overview of the process of designing and implementing multi-faced, targeted interventions for students who are highly gifted and who have an ASD diagnosis.

Purpose: The purpose of this study was to determine the efficacy of a targeted, multi-faceted intervention plan designed to address the complex needs of a highly gifted student with ASD.

Methodology: The study used a single subject research design, which took place over the course of two school years. Design and implementation of the interventions was informed by the research of Burger-Veltmeijer, Minnaert, and Van den Bosch (2015), Wu, Lo and Tsai (2019) and Cain, Kaboski and Gilger (2019), which looked at the identification of students who are both gifted and have ASD and how these dual diagnoses impact their experiences in school.

Interviews were conducted with the student, parent, and teachers, which uncovered differing understandings and expectations that contributed to school avoidance, frustration, and anxiety on the part of the student. In collaboration with the student, parent, and teachers, a series of interventions were designed to address the student's specific needs. Multiple sources of information were used including interviews, behavioural observations, school attendance, family background, educational experiences, and student/parent questionnaires. During implementation, weekly debriefing sessions and ongoing progress monitoring guided fine-tuning of goals. Behavioural observations, progress monitoring, and pre- and post-intervention interviews were collected as evidence to determine the effectiveness and relevance of the interventions.

Intervention Plan: The intervention plan used a collaborative, competency-based, and holistic approach. Enrichment projects were used as opportunities to work on areas of challenge

including social and conversational skills, turn-taking, emotional regulation, and executive functioning. The student was given agency in the learning process and in selecting topics. Organizational checklists and student check-ins were implemented both at home and in the classroom. Importantly, a central component of the plan was clear, ongoing communication with the student, parent, and teachers.

Outcomes: The student showed increased enthusiasm to attend school, and his record of attendance improved. There was a large improvement in the student's one-to-one conversational skills, patience, and turn-taking. The student self-monitored his executive functioning more frequently, showed greater self-awareness of his emotional-regulation needs, and was more willing to ask for help. In-class observations revealed an increase in participation and cooperation with peers. The family-school dynamic improved, and the parent became more receptive and collaborative. The preliminary results indicate the need to consider all factors impacting a student's functioning at the pre-intervention stage. A collaborative, communicative environment that promotes student and parent agency throughout the process is key.

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TITLE:

From Systems to Schools: A Canadian perspective on the shortcomings of gifted education

DESCRIPTION:

Gifted education is often characterized as a privilege rather than an educational need, and the needs of gifted students tend to be placed as the lowest priority in special education. This paper explores the current issues impacting gifted education in Canada. Effective support for highly able learners is hindered by issues at all levels, including systemic issues in education, socio-political factors, school infrastructure, classroom management, and curricular design.

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From Systems to Schools: A Canadian perspective on the shortcomings of gifted education

In the years I've spent advocating for the needs of highly able learners, I've encountered many roadblocks – indifference or even pushback from teachers and administrators; inadequate resources or expertise; and some pretty outdated attitudes and misconceptions. Advocating for any type of special education needs can have its hurdles; however, I've found the battle to secure adequate gifted programming to be a different kind of beast. When it comes to addressing the special needs of students, there is a tendency to place gifted students at the bottom of the pecking order because of an implicit understanding that gifted students' needs are a privilege not a priority. The problem with this is: 1) it's not true and 2) it runs the risk of letting highly able learners fall by the wayside.

But how do we make meaningful, effective changes to how gifted students are supported? There is a tendency as humans to want to look for one villain to point the finger at. Unfortunately, when it comes to deficits in gifted education, there is no single issue we can heap the blame on. Effective support for highly able learners is hindered by issues at all levels – from big-scale topics like systemic issues in education and socio-political factors right down to small-scale challenges at the school-level, such as infrastructure, classroom management, and curricular design.

Top-down Forces

The education system sets the tone and lays the framework for how gifted programming operates and is perceived. In chess, the education system would be the chessboard and the rules of play; the schools and districts would be the players. Players can make decisions, strategize, and prioritize, but they are always bound within the limits of the board and the rules of movement. Moreover, these rules

signal who and what players should deem important, and who can be sacrificed. The same can be said for special education policy and practices.

The top-down force that policy exerts on education plays an important role in shaping special education practices, perspectives, and the policies of districts and schools (Kanevsky & Clelland, 2013). Explicit recognition sends a message that this is something the government and the broader education system take seriously – and so should you. Silence speaks just as loudly. After all, if the system responsible for all aspects of education doesn't think it's worth mentioning, how important can it really be? Perhaps unsurprisingly, a 2013 study revealed a strong correlation between the existence of gifted education-specific documents and support for gifted programming services such as acceleration (Kanevsky & Clelland). That same study found that in Canada only one province, Saskatchewan, had legislation discussing gifted students, and only five provinces had any sort of policy document specifically focused on gifted education.

The one document listed for British Columbia was a 38-page manual, *Gifted Education: A Resource Guide for Teachers* (Kanevsky & Clelland, 2013), and it no longer exists. Google searches show mentions of it in older articles and a link to its now defunct government webpage, but it's nowhere to be found. It seems it was removed and replaced with a section in the government's *Inclusive Education Resources* webpage, which contains a single link: The University Transition Program website (B.C. Ministry of Education, 2020). This not only leaves B.C. teachers without important guidance and expectations to follow, it also sends the message that gifted students are not a priority. They don't need their own resource guide or planning framework – they get a chance at applying for an elite program that selects only handful of worthy applicants for each cohort. It's an excellent program and opportunity, but it's not enough.

Language and Implicit Messaging

This isn't to say that gifted students go completely unacknowledged in the system. The B.C. Ministry of Education's *Special Education Services: A Manual of Policies, Procedures and Guidelines* (2016, pp. 53-55) – B.C.'s main special education policy document – devotes a whole two and a half pages to gifted students. The fact that gifted needs warrant such little attention reinforces the message that gifted needs are not a priority. What's more, the broad, permissive information within those pages leaves most of the decision-making up to the districts and schools. The logic being that this provides flexibility for individualization. However, the B.C. Teachers' Foundation have criticized it for being too broad and flexible, thereby removing most system-level accountability. This can leave schools stranded to figure out on their own how to implement these broad policies without the stability that comes from guided oversight, clear expectations, and a structured framework (Fewster et al., 2007).

The manual also makes a lot of assumptions that creates further issues in developing adequate gifted support. Its guidelines operate under the assumption that teachers will have "sufficient training and experience" to be able to take on the provision of their students' gifted programming, with the further assumption that they are able to receive specialized support when needed (B.C. Ministry of Education, 2016, p.55). However, in my experiences, and those of many others (Gacoin, 2020), these are not realistic assumptions to make. Schools only have so much specialized support to go around, so they "triage the system" (Gacoin, 2020). Inevitably, gifted needs get sent to the back of the line. What's more, the majority of teachers I have worked with have little to no training or experience in gifted education. There are further systemic issues behind this, as teaching degrees (e.g., at the University of British Columbia and Simon Fraser University) have no requirements for any gifted education/programming coursework. Not only does the education system happily send teachers out

without any gifted experience, it then assumes that these same teachers will have the requisite training and experience to lead gifted-specific programming and inclusion in the classroom.

There is also the issue of language and the way it shapes our perspectives and priorities. Most of the language in the gifted education guidelines is permissive; it offers suggestions, not requirements. The problem with this is if you tell someone they don't have to do something they tend not to do it, especially if they are already overloaded. The language of 'recommend' not 'require' also further entrenches the underlying message that gifted needs are not a priority; they're a bonus. For example, in the manual, "Inservice training opportunities and a collaborative team approach are recommended" for teachers, not required (B.C. Ministry of Education, 2016, p.55). This is – curiously – in spite of the fact that adequate skills and experience are a pre-requisite assumption for said teachers. Yet these opportunities have now been framed as a luxury, not a necessity.

The language of "inclusion" can also have insidious effects on gifted perceptions and support. The B.C. Ministry of Education defines inclusion as "equitable access to learning, achievement and the pursuit of excellence" in education where "students with special needs are fully participating members" of the learning community (B.C. Ministry of Education, 2016, p.2). Inclusion is the belle of the ball at the moment, but the way it's framed matters. Its conceptualization and representation places much more emphasis on including those who are struggling to keep up. Even the term "equitable access" connotes everyone getting to the same level – it conjures up the idea of a fair chance or level playing field rather than a sufficient challenge and zone of proximal development. It's often accompanied by the classic representation of everyone standing on different sized boxes so they can all reach the same height and see over the fence. This frames the topic as bringing everyone up to the same level; the tall person stays where they are because they can already see. This sends the message that gifted students don't have the same need for support that struggling students have because they are already where they need to be (and

then some); it's the students who need support to catch up that take priority. Where is the equivalent imagery of a tall person who must stoop down to use a water fountain that others can reach on their own or with step stools?

Funding

Perhaps one of the biggest top-down impacts on gifted special needs has been from the B.C. Education Ministry's changes in funding. Prior to 2002, funding for special education was provided on a per student basis for all designations, including "soft" designations such as giftedness which had a 2% limit for a district (Battisti, Friesen & Hickey, 2012). In 2002, the Ministry of Education stopped funding "soft" designation categories like giftedness, which were now left to rely on funding from the basic per student grant money (Battisti et al., 2012). Once again, the message being transmitted was that gifted needs are not as important. Beyond that though, was the set-up for more tangible consequences to gifted education.

There is growing research to support the notion that fiscal incentives help drive designations, i.e. special needs categories that come with funding are more likely to be identified and prioritized (Cullen, 2003; Kwak, 2010). It makes sense. Special services require money, and if a school is stretched thin, it makes sense to focus first on the individuals whose funding can help secure some much-needed resources. After the gifted designation category stopped receiving funding in 2002, the number of new gifted designations in B.C. fell significantly (Battisti et al., 2012). Even more concerning was the substantial decline in reading scores for gifted students, which fell furthest for students who had spent longer under the new funding system (Battisti et al., 2012). This may be an indication that gifted programming is deteriorating in quality from the loss of fiscal incentives (Battisti et al., 2012).

Socio-political Factors

Institutional issues aren't the only factors that hinder effective gifted supports. Social pressures and expectations exert a strong force on the system at all levels. Fears of elitism and racism – not always unfounded – have led to criticism and distrust of gifted programming (Matthews & Foster, 2005; Silverman, 1997). These fears can run so deep that they put immense scrutiny and pressure on policymakers. Recently, a New York City advisory panel released a report calling for the end of gifted programs, citing them as biased and unfair (School Diversity Advisory Group, 2019). Representation in gifted programming can certainly be disproportionate, but this only highlights the need for a better accountability and mandated supports – not for fewer gifted services. The idea of helping the kids who are already excelling seems counterintuitive to many, especially when they see top grades as the goal of education. From that perspective, gifted students who excel have already won; asking for more advantages is simply unfair. The word “gifted” itself helps feed these attitudes. It implies that a child has been given a gift, that they are already privileged but are still asking for more.

School Infrastructure

Proper infrastructure and a collaborative culture are often highlighted as the most important aspect for ensuring effective gifted supports and other meaningful special education services (Gallagher, 2015; Waldron & McLeskey, 2012). Shelley Moore likens the need for structural support to recycling. No matter how much someone cares about recycling, it can't happen if the bins aren't there, or there isn't a collection service (Moore, 2018). It's easier to choose recycling when you have the right facilities and services in place. Similarly, it's easier to plan and meet the needs of gifted students when the right supports – money, time, training, resources – are in place.

One of the main issues raised by teachers in the BC Teachers' Federation regarding effective inclusion was the importance of meaningful collaboration at all levels of the school community (Gacoin, 2020); however, they emphasized that this was dependent on having the time and space to do it. They also highlighted the key role of strong support and leadership from administration for making the process successful (Gacoin, 2020). Of course, a collaborative school culture won't get you there on its own. Schools also need funding, and they need time: time for specialist training and professional development; time for planning and differentiation; and time to tackle the sometimes-overwhelming levels of paperwork requirements (Gacoin, 2020). Making these changes involves a process called comprehensive school reform (Waldron & McLeskey, 2012). Within this process, professional development is held as a crucial, central component for successful change and re-culturing (Waldron & McLeskey, 2012). This ties back to the systemic issues of the policy's failure to mandate skills training and collaboration opportunities. In turn, this manifests itself at the school-level among administrators, who in turn often neglect to provide adequate amounts of either. As mentioned earlier, this is further compounded by the lack of gifted training requirements in teaching programs, which only further necessitates the need for skills training and collaboration in schools.

Classroom Challenges

Within the classroom, some of the major hindrances to supporting gifted students come from deficits in classroom management and curricular design (VanTassel-Baska & Stambaugh, 2005). Differentiation requires additional classroom management strategies that many classroom teachers haven't been exposed to, and it is often cited as one of main difficulties that causes teachers to give up on differentiation attempts (VanTassel-Baska & Stambaugh, 2005). Without the requisite classroom management skills, it becomes very difficult to keep track of all the extra moving pieces that gifted programming creates, such as different assignments, activities, or depth of content (VanTassel-Baska &

Stambaugh, 2005). This is another area where specific skills training is vital in order to make gifted programming successful. This is also where proper support systems have the opportunity to provide the necessary mentorship and professional development.

Curricular design is probably the most well-known of all the issues in gifted education. Sadly, many teachers still don't know much about its specifics. From my own work experiences, there seems to be a tendency for teachers to want to shoe-horn their regular curriculum and lesson plans into some sort of gifted programming. However, gifted programming is not only meant to be highly dynamic and individualized, it is meant to have a scope that differs or goes beyond regular curriculum. That's not to say that gifted students can't benefit from the same types of things – just look at low threshold, high ceiling activities. The difficulty lies in trying to repurpose an existing curriculum into something different for different needs. It is much easier to build from the ground up and embed the unique needs of gifted students into the curriculum from the beginning, such as with Understanding by Design (see: McTighe & Wiggins, 2010). How can we blame teachers for not wanting to start some things from scratch? After all, planning takes a lot of time and work – two things we know they aren't being given enough of.

The First Step Is Admitting You Have a Problem

We may be a way off still from tackling many of these big-ticket issues – we've been talking about many of them for decades – but talking about them, in fact, is essential. Things are slow to change at a system-wide level, but there is great value to be had from knowing these issues at the personal level. Being able to point to the different kinds of underlying factors that are silently shaping and informing classrooms and schools saves a lot of blame and resentment from being thrown around the table.

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Research-intensive Professional Development Program as a Counterspace: A Qualitative Study of Academic Women of Color in STEM

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Introduction

In 2019, women of color (WOC) represented only 2.94% of the tenured faculty and 5.54% of the tenure track faculty in science, technology, engineering, and mathematics (STEM) (National Center for Science and Engineering Statistics, 2021). Because of their dearth in representation and systemic biases, WOC faculty report encountering racism, sexism, and the compounded nature of both (Collins, 2020; Main, et al., 2021; Malcom et al., 1976); resulting in academic bullying, marginalization, imposter syndrome, tokenism, isolation, lack of sense of belonging (Grant, 2021; M Ramos & Yi, 2020; McGee et al., 2021; Patterson et al., 2017; Wilkins-Yel et al., 2019, 2021). Additionally, WOC faculty must navigate white male normative spaces that may be unsupportive, uncomfortable spaces that do not allow WOC faculty to share their experiences and struggles with others, including their advisors/mentors (Wilkins-Yel et al., 2021). This also complicates their capacity to secure mentors who engage in culturally responsive practices to support their personal, academic, and professional development. These circumstances necessitate WOC faculty to find support outside of their departments and programs to persist in the academy (Dortch, 2016).

Researchers suggest counterspaces are critical to mitigating the adverse effects of challenging academic environments for women of color in STEM. Counterspaces are environments that facilitate psychological well-being among marginalized individuals (Case & Hunter, 2012). West (2019a) pointed out the importance of counterspaces in allowing African American women student affairs professionals, in particular, to develop interpersonal relationships. Such relationships were instrumental in creating spaces where these women could discuss their multiple identities such as navigating motherhood. Drawing upon their findings from interviews with 39 graduate and faculty women of color in STEM, Ong et al. (2018) identified the various ways that bootcamps (one type being research-intensive professional development programs) can promote interactions to enhance peer to peer relationships between participants and mentoring opportunities with facilitators. According to West (2019b), these relationships are crucial to relaying shared experiences about racial microaggressions experienced in the academy. In these spaces, women of color may also identify coping strategies for dealing with the difficulties of these environments. While West (2019b) notes the value of having same-race, same-gender spaces; Ong et al. (2018) underscores that these spaces may “vary in terms of the race/ethnicity, gender, and power levels of participants” (p. 206). Despite the participants involved, researchers assert that perceived safety and confidentiality are key factors in the viability and sustainability of these spaces (West, 2019b; West & Smith, 2021).

Conceptual Framework

For this study, we drew upon the concept of counterspaces. These spaces may exist in physical structures or include the presence of participants in an organization that advances the needs of a certain racial or ethnic group (Howard-Hamilton, 2003, p. 23). In contrast to STEM academic environments, which have been known to create chilly climates for women of color, as noted above, these spaces provide refuge from pervasively white spaces or microaggressions that subjugate academic WOC to harmful interactions with colleagues and students (Ong et al., 2018). Counterspaces allow disenfranchised faculty to be their whole selves (e.g., women, mothers, researchers, scientists) (Ong et al., 2018; West, 2019), feel a sense of belonging (Casad et al., 2021), and lead to an intact psychological self, necessary for persistence in the academy

(McGee, 2021). Most importantly, counterspaces serve as sites where deficit notions of people of color can be challenged and where a positive racial climate can be established and maintained (Howard-Hamilton, 2003). West (2017) used this framework to study Black women higher education professionals in a national professional development context designed to enhance their skills, knowledge, and competencies to successfully traverse their workplace environments. She uncovered that the program provided a “culturally homogeneous experience, infused with a variety of culturally responsive resources, that was delivered via a culturally intentional curriculum” (West, 2017, p. 1). To this end, we extend the application of this framework to examine the experiences of WOC in STEM through analysis of emergent data from the current study.

Context

The current study is part of a larger mixed-methods research study about an intensive professional development research program for doctoral dissertators, post-doctoral scholars, and early-career faculty in who are underrepresented in the STEM disciplines (e.g., Black/African American, Hispanic/Latinx). The larger study includes surveys, focus groups, and documents. The current study focuses on the focus group data to provide an in-depth understanding of the impact of the participants. The research program took place over a six-day period via Zoom technology during summer 2021. Sessions included professional development workshops, research meetings with mentors, methods training, daily homework to advance written products (e.g., dissertation chapters, journal articles), and participant presentations about their research progression. The research question that informs the current study is: How do underrepresented, women of color faculty of color in STEM describe and make-meaning of a professional development, research-intensive program designed to support their intersectional needs (e.g., double-bind of being women of color in STEM)?

Methods

Our sample included 35 participants. We conducted six separate focus groups with 4-7 participants in each group. The focus group interviews ranged from 60-75 minutes. Focus group interview protocols included questions about their professional development experiences, career aspirations, and ways that the intensive research program supported their holistic development (e.g., personal, professional, academic).

In preparation for analysis, focus groups interviews were recorded and transcribed verbatim by a professional service. Two research team members independently coded and constructed analytical memos about emergent themes from the transcripts. As a research team, we generated reflections about the codes and memos, which were framed around how the intensive research program served as a counterspace. Then, we convened several meetings to review emergent codes and reflections together. During these meetings, we applied axial coding to identify and synthesize how initial codes described the research experience as a counterspace (Saldaña, 2021). Themes emerged from engaging a constant comparative method across all focus groups (Charmaz, 2006). In this work-in-progress paper, we share preliminary themes that we intend to expand upon in our later work

Findings

Preliminary findings revealed the program served as an important counterspace for several reasons. Participants reported being able to “just show up” and not having to negotiate a professional environment demanding them to be “on all the time”. They could be their whole selves such that they did not have to worry about self-presentation or compartmentalizing their various identities. These minute but meaningful components of the intensive research program were critical to dismantling the power structure or dynamics that exist in other professional development opportunities. Because of the trust developed in this program and the authenticity reciprocated by the program conveners, participants perceived they could receive the knowledge and skills they needed in a more comfortable (and mutually beneficial) atmosphere. Participants also discussed the importance of having women of color scientists and engineering as program mentors and workshop facilitators. These mentors demonstrated their possible selves and bolstered their aspirational capital (Yosso, 2005).

Using counterpaces as a conceptual framework we identified three themes: 1) Safe space, 2) Role models, and 3) Sense of community. The first theme speaks to the variety of ways participants sensed the program, as a welcoming space where they could bring their authentic selves and all other identities to the experience enhancing their sense of belonging and the freedom to ask questions or make comments they would not do in other spaces. The second theme refers to the opportunity to interact and learn from other successful WOC in academia, either in workshop presenters, mentors, or peers in the program. Finally, the last theme, sense of community, illuminates the positive impact of having a safe space and the guidance from role models to boost participants' sense of belonging and persist in their academic journey. The following section summarized the aforementioned themes as they emerged from the data

Safe space. Participants referred to the program as a safe space where they can bring their authentic self and feel comfortable to be open and ask a question that they probably would not ask somewhere else. For example, a participant recognized that even having similar professional development opportunities in her department, she did not feel comfortable because of the context and the power dynamics between professor and students,

“We had, every Thursday in my department, professional development, which we designed as a department, so everybody had some input as to what we needed. However, I-- within that context, because everybody is known to you and your professors are the ones that are grading you, and it's a complicated space. I felt like I couldn't ask many questions often and, in this environment, I've actually felt sort of very free to ask things that I've wanted to know all this time and I've gotten some very interesting and important answers”

Similarly, another participant, also acknowledged the boot-camp offered her a space where she felt comfortable to ask questions, she would not ask in similar situations

“I just felt more comfortable to be able to be myself and to really ask those questions that maybe I wouldn't ask someone else in a very similar situation or a similar program. So, I just felt more comfortable to be me, how to ask those questions to kind of help guide me with regards to my research goals in my journey”

“A freer space like, somebody else said, like you could ask more questions and not feel judged or anything, but I just really appreciated that it was a lot of content that we could- - that we can eventually take away, so it was very instructive”

Another essential aspect of the program’s safe space was related to acknowledging different participants’ identity, such as motherhood and having a family. A participant explained how during the program she did not have to set away the importance of her children while pursuing an academic career.

One of the things that stood out to me, or and maybe I'm just more aware of it now, was that the topic of motherhood alongside career was not at all shied away from. It was more so embraced, and that just made me feel more comfortable, just really expressing what my career goals and plans are in light of the fact that I have children. I'm passionate about being a mother. And also, about developing my career as Engineering Researcher”

Similarly, other participant shared the program motivated participants to bring in their whole selves, including what is essential for them to outside academia

“I've never been in a professional development environment where they were able to-- or even focused on making sure that we thought about our whole selves and motherhood. Having a family. Having a husband and still promoting that we're best at all aspects versus just one aspect of ourselves. And it wasn't just one person saying it, it was just part of the program”

These observations illuminate how counterspace initiatives might provide a safe space impacting WOC beyond academia, allowing them to bring other vital identities, such as motherhood.

Role models. The program was perceived to be a safe space because it enabled participants to connect with other successful academic WOC in STEM. Participants shared they felt empowered by seeing the example and understating WOC experiences and insights about their journey. For example, a participant stated it was beneficial getting another perspective while feeling empowered at the same time,

“A space of just women in the academy, female students, women who are also professors, and so also women in industry, right? So, you're getting all these different perspectives and it's-- just having all those women in one space, it's a very powerful thing to experience, so definitely that is a similarity that I can draw between”

In another case, a participant mentioned she never had the opportunity to have professors sharing her identities during her academic journey, and probably she would never have if not were for the boot-camp,

"I've never had a Black professor, just hasn't happened for me, so I just really like being able to participate in programs like this and just be in this community. That's just not something that I really have access to otherwise."

Similarly, other participants shared they were thrilled about seeing other WOC being experts in many areas such as statistics,

"I also liked that we had a woman statistician because I have never-- I'm sorry. I didn't go to an HBCU. But I never seen it. And I was just like, "Are you kidding me? This is wonderful." So that's something that I was raving about."

"I think for me, one of the most kind of impactful and powerful things was just seeing these women what we would call success, what we would call basically have made it to the point that we're trying to get and getting a sense of successes and failures that come along with the journey, we are all, I believe, moving forward to reach a certain place, but they gave us so much insight and perspective on what all it really does entail"

These quotes demonstrated how the program provided the participants a unique opportunity to connect and know other successful WOC in academia, most of them stated this was their first time having this opportunity in their entire academic journey.

Sense of belonging. The program also offered the participants a sense of belonging beyond physical space. They perceived others supported and validated their thoughts, as various participants share their experiences. They acknowledged they could be vulnerable while not being afraid to be judged. Additionally, participants reported that this sense of belonging, and security extended to mentors and peers,

"Just the openness and honest environment and that space to just be vulnerable and have those conversations not only with your mentor but with the other peers as well, and so just having that space"

"I should say, women of color, when we get together and we talk and we're at that level, the narrative changes, and we become different people. And I think we grow, anyways, just getting together. So, there was a professional development for me, anyway, in that."

Another participant acknowledged how the sense of belonging was promoted in the program by creating an environment of confidence and care,

"So, what I've enjoyed so far with the program is the sense of community. The intimacy, the togetherness, the scholar, the senior scholars have been invested in us as opposed to other professional developments where it seems robotic, permit me to use that word. [laughter] They just have to do it. So that's something that's different for me"

Other participants noted the significance of the program's capacity to provide a safe space. Participants expressed being able to bring their whole selves to the program and connected with

other successful WOC demonstrated they belonged in the academy. These experiences also validated their presence in the STEM fields.

Significance

Like West (2019 a; 2019b), we found that participants perceived the research program to be safe because they could bring all of their identities (e.g., mothers, women of color) in this space, not only their academic identities. What is unique about our study is that we focus on academic WOC in STEM, including doctoral student, post-doctoral researchers, and early-career faculty, while West's studies centered African American women in student affairs administration. It was important to find that despite race and professional field, creating safe spaces is still critical for professional success and belongingness among women of color. In our study, participants noted role models empowered them to see their future in STEM. Additionally, peer-to-peer and mentoring relationships gave them the tools and support necessary to persist beyond the program. Other studies note the value of role models in addition to peer support and mentors (Ong et al., 2018; West & Smith, 2021). Sense of belonging also emerged as a finding in this study. Participants highlighted how conversing with other women and sharing narratives of the challenges of the academy were crucial to not feeling alone. Future research on this program should examine the extent to which participants report also garnering coping strategies in these environments. Such information will enable women of color to persist in the academy, as West (2019b). As West and Smith (2021) point out "these types of interpersonal interactions afford [women of color] the opportunity to both collect and transmit what has become known (among themselves) about how to survive and succeed in academia despite the prevailing racist/sexist oppressions they face" (p. 55).

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Proposal of Home-life Assessment List (HAL) for Reviewing the Lifestyle of Residents

Topic area: Health Education

Presentation format: Paper sessions

Description of the presentation:

Some non-communicable diseases (NCDs) are heavily linked to lifestyle choices, and hence, are often known as lifestyle diseases. Although NCDs have become a global problem, there is little public awareness of the association between health and lifestyle. In this work, we propose the Home-life Assessment List (HAL) that promotes the review of lifestyle by scoring the resident's life, and examine the effect on the health consciousness of residents.

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ABSTRACT

Lifestyle diseases have become a global problem. Some non-communicable diseases (NCDs) such as cardiovascular diseases (CVD), stroke, diabetes and certain forms of cancer are heavily linked to lifestyle choices, and hence, are often known as lifestyle diseases.

NCDs are the leading cause of death and ill health and account for seven of ten deaths worldwide. Recently, efforts based on SDGs target 3.4 are improving the cumulative probability of death from four NCDs (cancer, cardiovascular disease, chronic respiratory disease and diabetes; referred to as NCD4 hereinafter) between exactly 30 years and exactly 70 years of age in developed countries. However, the indicator for SDG target 3.4 excludes NCDs other than NCD4 and deaths in people younger than 30 years of age, and 70 years and older. Unfortunately, the paper of NCD Countdown 2030 showed that progress is too slow to achieve the SDGs target 3.4 in most countries. From the perspective of the number of deaths from NCDs other than NCD4, the number of deaths from NCDs by country, and a wide range of age groups, it is necessary to resolve NCDs caused by lifestyle diseases even in developed countries.

From the viewpoint of creating the environment, it is necessary to prepare facilities and policies that enable a physically healthy life. However, we consider it is also necessary to encourage people to take actions that can utilize those facilities and policies. In order to improve lifestyle diseases, we consider that it was necessary to visualize the living conditions for residents to review the lifestyle.

In this work, we propose the Home-life Assessment List (HAL) that promotes the review of lifestyle by scoring the resident's life for education of lifestyle. In Japan, Home Energy Management System (HEMS) is spread utilizing IoT devices. The purpose of "HAL" is to educate residents about their health management and the energy management of homes from the viewpoint of SDGs. HAL calculates the score of lifestyle (Life score) every day that the maximum score is 100 points from six evaluation viewpoints (Clothing, Food, Housing, Physical Condition, Mental and Energy).

Life score is calculated based on device and questionnaire data. Basically, Life score is calculated based on the device data. Estimate the lifestyle of residents from device data and calculate the Life score. As devices used to calculate the Life score, we consider the IoT devices such as home appliances compatible with the international standard ECHONET Lite (ISO/IEC1453-4-3), and wearable devices from the perspective of privacy protection. If the device data is insufficient to calculate the Life score, the Life score is calculated from the questionnaire data. In the questionnaire, we ask residents to answer their living conditions based on the six evaluation viewpoints (Clothing, Food, Housing, Physical Condition, Mental and Energy) of HAL.

In this work, we examine the calculation method of Life score and the questionnaire contents, and report the effect of Life score on the health consciousness of residents. As the expected outcomes, we consider the effect that education for lifestyle of residents and improvement of lifestyle diseases.

1 INTRODUCTION

Lifestyle diseases have become a global problem. Some non-communicable diseases (NCDs) such as cardiovascular diseases (CVD), diabetes and cancer are heavily linked to lifestyle choices. These NCDs are often known as lifestyle diseases. Lifestyle diseases have become a global problem. Some non-communicable diseases (NCDs) such as cardiovascular diseases (CVD), diabetes and cancer are heavily linked to lifestyle choices. These NCDs are often known as lifestyle diseases. CVD that include heart attacks and stroke account for 17.7 million deaths every year. [1] CVD is the most lethal disease globally. Recently, efforts based on Sustainable Development Goal (SDG) target 3.4 are progressing to reduce the cumulative probability of death from four NCDs (cancer, CVD, chronic respiratory disease, and diabetes). The goal of SDG target 3.4. is By 2030, reduce by one third [relative to 2015 levels] premature mortality from NCDs through prevention and treatment, and promote mental health and well-being. [2] Based on 2010-16 trends, women in 9.7% (17 of 176) countries and men in 8.5% (15 of 176) countries are expected to achieve SDG target 3.4. [3] Unfortunately, the paper of NCD Countdown 2030 showed that progress is too slow to achieve the SDGs target 3.4 in most countries. To achieve SDGs target 3.4, it requires a combination of prevention, early detection, and treatment. Individual action for physical activity is influenced by the environment such as sports and recreational facilities, and national policy. From the viewpoint of creating the environment, it is necessary to prepare facilities and policies that enable a physically healthy life. However, we consider it is also necessary to encourage people to take actions that can utilize those facilities and policies.

We consider that it is important to raise awareness of health through health education for people's healthy lives. In order to improve lifestyle diseases through the health education, we consider that it was necessary to visualize the living conditions for residents to review the lifestyle. In this work, we propose the Home-life Assessment List (HAL) that promotes the review of lifestyle by scoring the resident's life for education of lifestyle.

2 Home-life Assessment List (HAL)

2.1 HAL

In Japan, Home Energy Management System (HEMS) [4] is spread utilizing IoT devices. IoT means the Internet of Things. By connecting devices such as home appliances and sensors to the network, it becomes possible to utilize data between devices and systems. Figure 1 shows a schematic diagram of HAL. The purpose of "HAL" is to educate residents about their health management and the energy management of homes utilizing IoT devices from the viewpoint of SDGs.

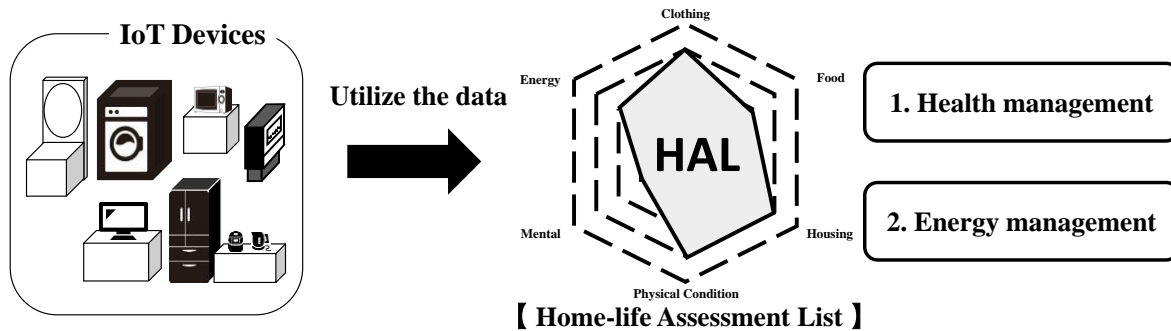


Fig. 1 Schematic diagram of HAL

2.2 Evaluation items of Life score

HAL calculates the score of lifestyle (Life score) every day that the maximum score is 100 points from six evaluation viewpoints.

Table 1 shows a table of HAL evaluation items. As the "Primary Item" for "Life Score", we devised the six items, "Clothing", "Food", "Housing", "Physical Condition", "Mental", and "Energy". For each of the six "Primary Item", we defined the details of the evaluation contents and the selection of "Tertiary Item" base on the existing checklist of life rhythm and health.

Table 1 Evaluation items

Primary Item	Tertiary Item	Primary Item	Tertiary Item	Primary Item	Tertiary Item
Clothing	Washing frequency	Housing	Cleaning frequency	Mental	Stress
	Ironing frequency		Cleaning up situation		Communication
	Clothing selection		Ventilation frequency		Smile frequency
	Clothes type		Amount of dust		Frequency of going out
	Change of clothes frequency		Room temperature		Friendship
	Nailclipper frequency		Bedding cleanliness		Frequency of face-to-face
	Toothpaste frequency		Locking management of house		Uplifting
	Shaving and waxing frequency		Time of sleeping		Frustrated
Food	Cholesterol levels	Physical Condition	Momentum (Sports)	Energy	Hobby satisfaction
	Blood pressure levels		Momentum (Number of steps)		SNS dependence
	Blood glucose levels		Meal time (morning)		Reduction amount of garbage
	Amount of water		Meal time (lunch)		Recycling frequency
	Intake of vegetables		Meal time (night)		Reduction of plastic
	Intake of meats		Body fat percentage (BMI)		Reduction of electric power
	Calories		Bath frequency		Reduction of gas
	Time of midnight snack		Taking medicine		Reduction of water
	Expiration date		Alcohol drinking frequency		Reduction of automobile exhaust
			Smoking frequency		
	Sitting time				

2.3 Calculation of Life score

The Life score is calculated from IoT devices used in daily life such as home appliances and sensors, and questionnaires. Figure 2 shows a schematic diagram of the Life score calculation method. Basically, the Life score is calculated from the data acquired from the IoT device. If there is not enough IoT devices required to calculate the Life score, collect the data required to calculate the Life score from the questionnaire.

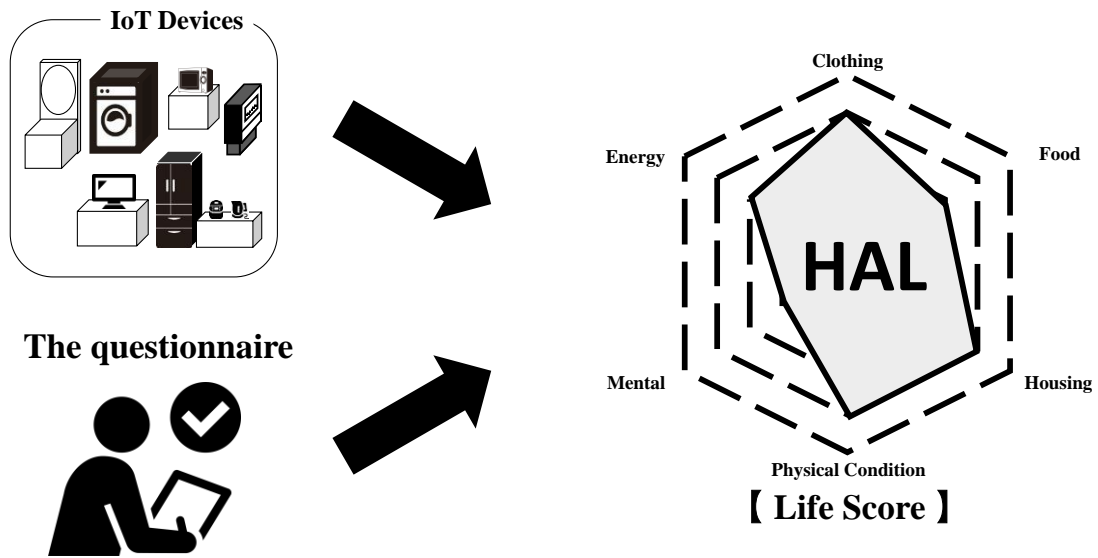


Fig. 2 Calculation of Life score

3 Examination of Life score calculation by questionnaire

3.1 Questionnaire survey

To check the utility, we conducted the questionnaire survey of the evaluation items of “HAL” at the university festival on November 2nd and 3rd, 2019. We devised the questionnaire item based on the “Tertiary Item” in Table 1 and the existing checklist of health, which was possible to answer on a daily basis. The contents of the questionnaire items in the survey were based on the living conditions of the day before the answer date. Five levels of the evaluation criteria were set for the questionnaire items, and the scores were calculated as 10, 8, 6, 4, and 2 points. In case of survey respondents can’t answer the question in five levels, we set an item which is possible to answer “I don’t know” and set the score to 0 points.

When the scores of each “Primary Item” is *Primary X* (the maximum score is 10 points), the total score of each “Tertiary Item” is *Tertiary X*, and the number of questions of “Tertiary Item” is *Number X*, the Life score is calculated by the following formula ($N=1,2,3\dots6$).

The formula for the scores of the “Clothing” (the scores of the “Clothing” is *Clothing*).

$$Primary\ 1 = Tertiary\ 1 \times Number\ 1$$

$$Clothing = Primary\ 1 \times 2.0$$

The formula for the scores of the “Food” (the scores of the “Food” is *Food*).

$$Primary\ 2 = Tertiary\ 2 \times Number\ 2$$

$$Food = Primary\ 2 \times 2.0$$

The formula for the scores of the “Housing” (the scores of the “Housing” is *Housing*).

$$Primary\ 3 = Tertiary\ 3 \times Number\ 3$$

$$Housing = Primary\ 3 \times 2.0$$

The formula for the scores of the “Physical Condition” (the scores of the “Physical Condition” is *Physical*).

$$Primary\ 4 = Tertiary\ 4 \times Number\ 4$$

$$Physical = Primary\ 4 \times 1.0$$

The formula for the scores of the “Mental” (the scores of the “Mental” is *Mental*).

$$Primary\ 5 = Tertiary\ 5 \times Number\ 5$$

$$Mental = Primary\ 5 \times 1.0$$

The formula for the scores of the “Energy” (the scores of the “Energy” is *Energy*).

$$Primary\ 6 = Tertiary\ 6 \times Number\ 6$$

$$Energy = Primary\ 6 \times 2.0$$

The formula for the scores of the “Life score” (the scores of the “Life score” is *Life score* and the maximum score is 100 points).

$$Life\ score = Clothing + Food + Housing + Physical + Mental + Energy$$

3.2 Result of questionnaire survey

The questionnaire survey was conducted on a total of 44 people. The maximum score of the each “Primary Item” was calculated as 10 points. The scores of the “Primary Item” were calculated as the average of the “Tertiary Item”. Figures 3 to 5 show the Life score calculated from the results of the questionnaire survey as a bar graph. Figure 3 shows the Life score results of all the survey respondents (44 people). Figure 4 shows the Life score results of the survey respondents summarized by gender (34 males and 10 females). Figure 5 shows the Life score results of the survey respondents summarized by household (37 people living in a family, 7 people living alone).

From the result of Figure 3, it can be seen that the score of “Clothing” item is high in the Life score of all the survey respondents. The score of the “Housing” item is lower than other items. Therefore, it is necessary to review the calculation method of points and items in the evaluation criteria of the “Housing” item.

From the result of Figure 4, it can be seen that in the survey respondents summarized by gender, females are higher score than males at all items except the “Food” item. Therefore, it was found that there is a difference in consciousness in daily life between men and women.

From the result of Figure 5, there is a particular difference in the score of “Energy” item between the person living alone and living in a family. As a tendency, it was found that the person living alone have a little less consideration for the eco-friendliness and the power saving.

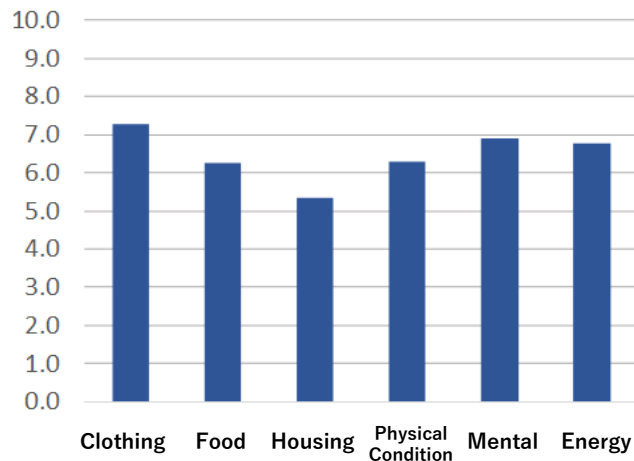


Fig. 3 The Life score results of all the survey respondents

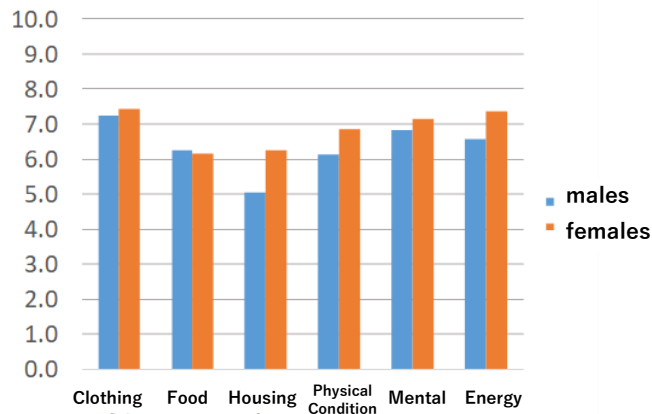


Fig. 4 The Life score results of the survey respondents summarized by gender

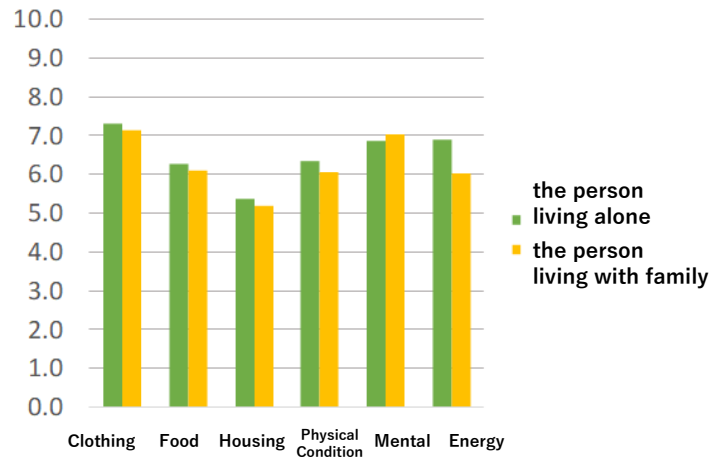


Fig. 5 The Life Score results of the survey respondents summarized by household

4 Examination of Life score calculation from power consumption data of IoT devices

4.1 The acquisition environment

Under the HEMS environment, power consumption data of IoT devices can be acquired. In this section, we report on the estimation of living behavior required to calculate the Life score from the power consumption data of home appliances. we define a total of four residents' behaviors (“watching time of TV”, “using time of the washing machine”, “cooking time”, and “ using time of hairdryer”) as “Target of residents’ behavior”, and estimate from the power consumption data of each home appliance.

We acquired the power consumption data of home appliances (Washing machine, TV, Rice cooker, Ventilator and Hairdryer) at intervals of one minute from the real house occupied by three subject students (Acquire 1440 data per day for each home appliance). The period of the acquisition of the power consumption data is from December 3rd, 2020 to 13th (a total of 11 days).

Figure 6 shows the schematic diagram of the data acquisition environment. The home appliances used in the acquisition are network home appliances equipped with ECHONET Lite [5]. Since home appliances are not support ECHONET Lite, a measuring instrument eneQube [6] that supports the ECHONET Lite communication protocol was connected and used as pseudo network home appliances.

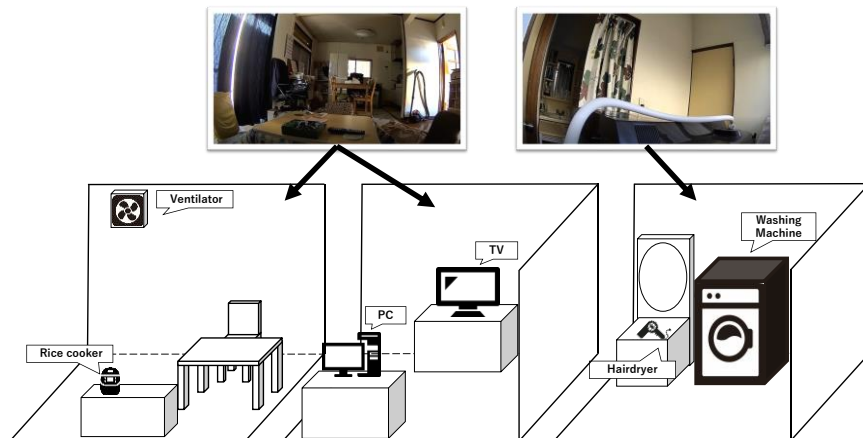


Fig. 6 The acquisition environment

4.2 Estimation flow of residents' behavior

In this section, we describe the estimation flow of residents' behavior. The flow of estimation method of residents' behavior is shown below.

- (1) Analyze the operating status (ON/OFF) from the power consumption data of each home appliance.
- (2) Estimate the "Target of residents' behavior" from the operating state (ON/OFF) of each home appliance.

4.3 Method to analyze operating status from power consumption data

In this section, we describe the Method to analyze operating status from power consumption data. When a value of 0 [W] is detected in the power consumption data set (for one day) of home appliances, the operating state is OFF. If the value of power consumption is larger than 0 [W], the operating state is turned ON.

If the value of 0 [W] is not detected in the power consumption data set (for one day) of home appliances, it is assumed that standby power is generated. The flow of method to analyze the standby power consumption of home appliances is shown below.

- (1) The value with the (N)th highest frequency, where $N = 1, 2, 3 \dots N$, is expressed as "(N)th mode". Find all the power consumption values that appear frequently (F) at five [%] or more in the power consumption data set (for one day).
- (2) The power consumption values from the first to (N)th the mode are compared, and the largest power consumption value is set as the maximum value of the standby power, which is referred to as the "standby power value".

4.4 Method to estimate the "Target of residents' behavior" from the operating state

In this section, we describe the Method to estimate the "Target of residents' behavior" from the operating state (ON/OFF). Each "Target of residents' behavior" is defined as A to D item ("watching time of TV" as item A, "using time of the washing machine" as item B, "cooking time" as item C, and "using time of hairdryer" as item D).

We consider that "Target of residents' behavior" can be estimated when the operating state of the home appliance was ON. Therefore, I consider the estimation rule as shown in Table 2 (i.e., in Table 2, when the operating state of rice cooker or ventilator is ON, or both rice cooker and ventilator are ON at a time point (t), it is estimated that residents' behavior is the cooking time at a time point (t)).

Table 2 The estimation rule of residents' behaviour

Item	Home appliances				
	Washing machine	TV	Rice cooker	Ventilator	Hairdryer
A		ON			
B	ON				
C			ON	ON	
D					ON

4.5 Result of estimation

In this section, we describe the result of estimation accuracy. We recorded the correct data about "Target of residents' behavior" of three subject students on December 3, 2020. Table 3 shows the estimation accuracy of "Target of residents' behavior" analyzed from the power consumption of each home appliance based on the date of December 3, 2020.

In Table 3, the correct answer rate of the estimation method is "correct", the incorrect answer rate due to data loss is "lack of data", and the incorrect answer rate by the estimation method is "wrong". With the proposed estimation method, we were able to estimate behavior with an accuracy of 90% or higher for all items using the data of December 3rd, 2020.

Table 3 The result of estimation accuracy

Item	correct	lack of data	wrong
A	95.8%	1.94%	2.29%
B	97.3%	2.71%	0%
C	91.5%	0%	8.54%
D	97.4%	2.57%	0%

5 Conclusion

5.1 Examination of Life score calculation by questionnaire

To evaluate the items and calculation of the Life score, we conducted a questionnaire survey. From the result of the survey, we confirmed that the value of Life score differs depending on the factor such as gender, age, household composition. However, it is necessary to consider the factors such as gender, age, household composition in order to improve the scoring of living conditions by Life score.

5.2 Examination of Life score calculation from power consumption data of IoT devices

From the power consumption data of some IoT devices, we were able to estimate the living behavior required to calculate the Life score with an accuracy of 90% or more. This showed the possibility that the power data of IoT devices can be used not only for energy management but also for health management.

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Title: Cultivating Educator Efficacy Through Co-Teaching: Positively Impacting the Lives of Students with Disabilities

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Effective collaboration and communication between teachers-general education, special education, and paraeducators- is essential to ensure that students with disabilities, and all students, receive quality services and progress in the general education classroom. With a continued emphasis on inclusive practices and an increase in student diversity, schools face the hurdle of providing services to students with disabilities, and all students, that are universal, effective, and least restrictive (Bauman, Silla, & Stufft, 2010; Cook & Friend, 2004). Co-teaching is a model that emphasizes collaboration and communication among all members of an educational team – general education, special education, paraeducators, school counselors, and other education specialists- to meet the needs of all students. However, what constitutes a team often varies from school to school and even from district to district. Despite limited research on the overall effectiveness of this model, several advantages appear in the literature (Bauman, Silla, & Stufft, 2010; Brown, Howerter, & Morgan, 2013; Yates et al., 2020).

Documented benefits include:

- A more elevated feeling of job satisfaction and empowerment for educators.
- Increased understanding of all students' needs.
- Vital instructional programs that improve student learning.
- An improvement in skills-based knowledge of working with diverse students and students with disabilities.
- An increased acceptance of diverse students and students with disabilities by peers and teachers.

In examining the literature on the co-teaching model, several common themes surface critical for successfully implementing this model. These themes focus on a need for effective communication between team members, administrative support, similar viewpoints, and collaborative planning time (Brown, Howerter, & Morgan, 2013; Dettmer et al., 2009).

The Co-Teaching Partnership

The co-teaching model pairs professionals together in a classroom to share the responsibilities of planning, instructing, and assessing students. In a co-teaching setting, all professionals (general education and special education teachers, ESOL educators, paraprofessionals, university teacher candidates, and other education professionals) are considered equally responsible and accountable for the classroom. Co-teaching is most often implemented with a general educator or special educator, and a paraeducator paired together to create a more inclusive classroom environment to meet the needs of all students (Dettmer et al., 2009; Cook & Friend, 2004).

* special or general educator and a paraprofessional

* two general education teachers

* speech/language pathologist and a special educator or general educator

- * social worker and a special educator or general educator
- * English as a second language educator and general educator or special educator
- * other support personnel (librarian, school counselor, school psychologist, school social worker, school nurse, university student teacher) and special educator or general educator
- * elective teachers (P.E., music, art, technology, etc.) and a special educator or general educator

The co-teaching team comes together for a common purpose, typically to meet a diverse and wide range of learners more effectively (Brown, Howerter, & Morgan, 2013; Yates et al.,2020). These teams may have a long-term plan for working together (an entire academic year) or short-term to complete a unit (thematic unit) or prepare students for specific skills (e.g., state testing). Despite the numerous co-teaching relationships that can exist, for this module, the examples will focus on the most common co-teaching collaboration, which is between general and special education professionals in the general education classroom. However, you can apply the following information to numerous pairing teams based on student needs.

Implementing the Co-Teaching Model

The co-teaching model can be implemented using various partnership teams and methods (Cook & Friend, 2004). However, the co-teaching model is typically executed using one of the following six approaches:

1. The **one teaches while one observes** approach allows one educator to view specific teaching strategies or assess teaching performance. Frequently, this method is used with student teachers or during paraprofessional training. However, the one teaches while one observes approach is also effective with practicing teachers, especially when introducing new or unique teaching strategies. This method allows the co-teaching pair to improve their practice continually and best meet all students' needs in the classroom.
2. A **one teaches while one drifts** approach is similar to the one teaches while one observes approach. Still, in this approach, while one teacher is instructing the classroom, the second teacher provides additional assistance and support to students as needed. This approach is commonly used to support students with disabilities in the general education classroom.
1. The **station teaching** approach breaks down a lesson or thematic unit into individual lessons or smaller minilessons. Each educator provides instruction at independent stations or rotates between smaller groups of students to provide instruction. This approach allows educators to deliver specific content area instruction in their area of interest and expertise and works particularly well when integrating a grade-level core curriculum thematic unit.
3. When using the **parallel teaching** approach, the teachers divide the class into two groups. Each teacher may instruct the same content and materials simultaneously. In this arrangement, the smaller groups allow more guidance and opportunities for interaction

between the students and teacher. Or, in many cases, the same content and skills are taught with different materials based on student interest. For example, while teaching researching skills, one group of students explores natural disasters while the other group investigates historical events.

4. One teacher handles a larger group using the **alternate teaching** approach, while the other teaches a small group that needs specialized attention and additional support. This procedure is frequently used when one teacher has specific skills-related training, such as special education or English as a second language.
5. The **team-teaching** approach requires a strong partnership and can be one of the most fulfilling methods of co-teaching. With this approach, the co-teachers equally share responsibility and deliver instruction simultaneously as a “tag-team.”

Keep in mind the use of multiple co-teaching approaches can be most effective when delivering instruction. For example, a co-teaching pair may use the 'team teaching' approach to introduce the thematic unit and use the 'station teaching' approach to deliver the curriculum content. The educators should select the co-teaching approach best suited by their teaching styles, the unique needs of the classroom, and the lesson (Yates et al., 2020). When the co-teachers are comfortable using various co-teaching approaches and cooperating as equals, the experience for educators can be compelling, and their ability to positively impact student learning is empowering.

Figure 1 Lesson Plan for Co-Teaching

Lesson Plan for Co-Teaching			
Team: General Education Teacher, Special Education Teacher, Paraeducator			
Grade Level: 4 th CCSS 4.NBT.A.3 Lesson Objective: I can use place value to round numbers	Purpose of the lesson: Students will use place value understanding to round whole numbers to the nearest tenths place Short Term Goal: Students will identify place value and rounding to the nearest tenths Long Term Goal: The students will apply skills to estimation in dollars, cents, and budgeting		
Other Skills to Address: SEL: Peer cooperation, taking turns, respectful collaboration & communication			
Student Needs and Strengths: Anna: visual impairment, works well with peers Johnny: 2 nd grade reading level, works hard Maria & Juan: great peer tutors	Accommodations/Modifications/Behavior Supports: Alan: ADHD, low attention span, frequent verbal outbursts & out of seat behavior, may provide fewer test questions if needed Tony: Uses assistive technology to write Johnny & Anna: Read test aloud		
General Anticipated Needs			
Academic Challenges: Plan for Johnny’s reading disability, Anna’s visual impairment, and Tony’s need for assisted technology when writing		Behavioral Challenges: Plan for Alan’s ADHD; low attention span, out of seat behavior, and verbal outbursts	
Three-person instructional team roles (<i>Italic= support role</i>)			
Sequence	General Ed Teacher	Special Ed Teacher	Paraeducator
Introduce Topic (Team Teaching)	Introduce Topic; engage students, lead discussion on place value/round numbers, money	Introduce Topic; engage students, lead discussion on place value/round numbers, money	<i>Walk around the classroom; redirect student attention; add details to discussion; monitor & redirect Alan’s behavior</i>

Whole Class Instruction (One Teaches, One Drifts)	Discuss vocabulary; provide problem examples; dry erase boards for student responses	<i>Support content being taught; help students with incorrect answers; support Alan, Johnny, Anna, and Tony</i>	<i>Help students with incorrect answers; collect behavior data for Alan and ensure he is on task; support Johnny, Anna, and Tony as needed.</i>
Transition to Stations	Describe front of room activities	Describe back of room activities	Describe kidney-bean table activities
Minilessons (Station Teaching)	Front of room: Introduction to place value on Smart Board, 10 minutes, rotate to back of room, use timer	Back of room: Hands-on introduction of place value concepts; 10 minutes, rotate to kidney-bean table	Kidney-bean table: read "Spaghetti & Meatballs for All: A Mathematical Story;" 10 minutes, rotate to front of room
Transition to Whole Class Instruction	Return students to whole group on cue; begin cue with countdown	Return students to whole group on cue	Return students to whole group on cue
Whole Class Instruction (One Teaches, One Drifts)	Review key concepts; explain how skills can be applied to money	<i>Support content being taught; assist all students as needed; monitor Alan, Johnny, Anna, and Tony</i>	<i>Monitor and provide assistance as needed with Alan, Johnny, Anna, and Tony</i>
Formative Assessment (Alternate Teaching)	Hand out test; answer questions; collect papers; grade all student work	Have assisted technology available for Tony; <i>assist with students as needed</i>	Read test to Johnny and Anna
Adapted from Yates et al., (2020) <i>Working with paraeducators: Tools and strategies for planning, performance feedback, and evaluation</i> , p.45.			

In Summary

There is an adjustment period for new co-teaching teams, and therefore, educators must be committed to making their partnership work. Effective co-teaching partnerships understand there will be challenges in finding time to plan for delivering instruction collaboratively (Brown, Howerter, & Morgan, 2013). Also, effective co-teaching partnerships accept differences in knowledge and teaching styles and varying approaches when interacting with students.

Co-teaching is an instructional delivery method that has gained favor in recent years and is consistently used to provide educational supports to diverse students and students with disabilities (Brown, Howerter, & Morgan, 2013; Bauman, Silla, & Stufft, 2010). Although, to date, the studies on the co-teaching model remain limited. However, research has shown co-teaching has a positive impact on student learning and increases teachers' views of their ability to address the needs of all students.

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Examining Technology Use and Stress Factors in Divorcing Individuals During the Covid Pandemic: Should Additional Technology Services be Provided?

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Abstract

Divorced and/or divorcing individuals filing paperwork in family court in a large Texas metropolitan county between June 2019 and July 2021 were asked to complete three surveys. These surveys included: Measuring Divorce Adjustment by Wang and Amato, the Covid-19 Stressor Scale by Park, C. L., Finkelstein-Fox, L., Russell, B. S., Fendrich, M., Hutchison, M., & Becker, J. (in press), and a Technology Usage Scale that consisted of a series of questions dealing with the types and frequency of technology used during the pandemic. For this paper, gender differences on the variables technology usage and stress during the Covid-19 pandemic were explored. Although seven areas of increased “stress” were identified among all participants, no differences between males and females were found concerning stress levels related to Covid. For technology usage, males used dating websites significantly more than females. Females used mobile phones and social media more than males during the pandemic. Recommendations are made to make technology and counseling services available to individuals experiencing two major stressful events simultaneously.

Stressors and Technology Usage During the Covid-19 Pandemic

Divorce represents a major life stressor that is followed by numerous life changes and adjustments (Simons, 1996). For many people, divorce often involves loss of the family and friends who have closer ties to the spouse (Cipric, 2020), and the covid pandemic has introduced additional stressors for individuals and families who are experiencing divorce (Cipric, 2020). Divorced or divorcing individuals who are also coping with the Covid pandemic have been subjected to not one but two stressful events (Gokmen, 2020). It is important to determine how these two events influence individuals seeking a divorce. It is also critical to identify individuals under extreme stress, not only so that services might be provided to meet the individual and family needs, but also to determine if technology can provide services to help reduce the stress factors for all who are coping with Covid and divorce.

Literature Review

According to Cipric et al (2020), divorce is one of the most stressful life events and has consistently been associated with subsequent poor mental and physical health. The researchers evaluated the effectiveness of the Cooperation after Divorce (CAD) online intervention on perceived stress immediately following divorce. The study found that the program significantly accelerated the reduction of perceived stress among recently divorced adults when compared with controls. After one year, stress levels in the intervention group were reduced to average national stress rate. The results suggest that online interventions may offer long-term public health benefits in reducing stress among newly divorced individuals. Such a program has great potential in the Covid pandemic.

Factors Influencing Stress During Divorce Beavin and Sharkin (2003) studied a sample of 119 volunteers (58 men, 68 women) in various stages of divorce. These researchers found that, contrary to previous research (Ryff, 1989), no gender differences were found on scores of well-being during divorce. Results of this study suggest that men and women do not differ significantly in their adjustment after divorce. These findings are consistent with research by Reissman (1990) and Colburn et al. (1992), in which no gender differences in divorce adjustment between genders were found. During times of extreme stress such as those experienced during the pandemic, it is important to see if gender differences in the adjustment to divorce exist.

In research related to divorce-stress-adjustment, researchers (Kappelle & Baxter, 2021) studied housing worth and financial net worth of individuals in Germany whose marriages dissolved between 2002 and 2017. Analyses used comprehensive wealth data from the German Socio-Economic Panel study. These researchers found that marital dissolution is a process that lasts several years. Kappelle and Baxter found that, although wealth declines commenced prior to separation, separation was the most critical point with 82% and 76% reductions in personal wealth of men and women, respectively. Income was not usually recovered in years after divorce. The lasting separation penalty was mainly driven by declines in housing wealth and a lack of financial wealth recovery. The researchers found that predicted wealth levels indicated that men may be in a financially better position compared to women due to higher pre-separation wealth levels.

In addition to income discrepancies between males and females, recent studies have also compared low-income and high-income couples. Low-income couples have been shown to experience higher rates of relationship disruption, including divorces, than higher-income couples (Williamson, Nguyen,

Rothman and Doss, 2020). Williamson et al sampled over 5,000 individuals who were currently seeking an online relationship intervention and compared the relationship functioning and life circumstances reported by low-income individuals to that of higher-income individuals. Results indicate that low-income individuals seeking a relationship intervention had higher levels of relationship distress and greater levels of contextual stress (more children living at home, less likely to be employed full-time, and lower levels of perceived health). Low-income individuals may also have more difficulty accessing online technology. Results suggest that future interventions designed to target low-income couples should be prepared to provide needed technology and offer needed technology training to address higher levels of relationship distress and contextual stressors.

The Covid-19 pandemic appears to be influencing stress levels, as suggested by a recent study. Divorcees in Denmark showed significantly higher perceived stress levels than either the general or the “longer” divorced/separated populations (Sander and Hald, 2021). Lower age, lower education level, lower-income, infidelity, former spouse divorce initiation, not having a new partner, and higher divorce conflict significantly predicted higher stress levels equally among both male and female participants using structural equation modeling.

Measuring Stress During the Coronavirus Pandemic During the coronavirus epidemic, Arslan, Yıldırım, Tanhan, Buluş, and Allen (2020) developed the Coronavirus Stress Measure (CSM) to assess stress related to COVID-19. This instrument was adapted from the 14-item perceived stress scale (Cohen et al., 1983). The CSM included eight items with scoring based on a 5-point Likert type scale, ranging between 0 = never and 4 = very often (e.g., “In the last month due to coronavirus, how often have you felt that you were unable to control the important things in your life?}) These researchers determined that the scale showed good evidence of convergent validity with theoretically similar constructs such as anxiety and depression and divergent validity with demographic factors such as age.

Vukalovich and Caltabiano (2008) noted differences in adjustment to separation and divorce for men and women on the Social Support Appraisal Scale. However, after engaging in a community-based intervention program, no difference was noted between men and women on the Social Support Appraisal Scale. These results imply short-term benefits of attending an adjustment to divorce program. It would seem important to see how such programs might be adapted to accommodate restrictions during the Covid pandemic.

When Park Russell and Fendrich (2020) looked at stress factors related to Covid in 1,015 US adults over the age of 18, they found that younger age, female gender, and caregiver status increased the degree of stressfulness. The most frequently reported strategies to manage stress were distraction, active coping, and seeking emotional social support. The researchers indicated that responses to an unprecedented pandemic and their degree of adherence to CDC guidelines is essential for mental health interventions and policy-making in the US. The sample was 53.9% women (n = 547), with an average age of 38.9 years (SD = 13.50, range = 18–88), most of whom were White (n = 836, 82.4%), non-Hispanic (n = 929, 91.5%), and straight/heterosexual (n = 895, 88.2%); 40% were currently married (n = 407), and 21.6% (n = 219) were caregivers. About half (50.5%) endorsed having at least “mostly” enough money to meet their needs. Respondents’ locations across the USA ranged from 18.5% in the Northeast to 37.8% in the South.

Lebow 2021 states that the legal system is either not open or not proceeding with a major backlog of cases for most divorcing couples. Because of the pandemic, the divorce process is now much harder to launch or carry out. Lebow states that for those in violent homes, there is the concern of initiating action

without typical levels of support. Lebow expresses concern that the ability to divorce and leave a dangerous situation is more constrained. Lebow indicates that mediation opportunities that often help divorcing couples solve issues related to the divorce are often on hold or limited. Lebow states that Individuals without adequate technology access are even at greater risk for stress because they can experience issues with filing paperwork or even obtaining counseling.

Method

Divorced and/or divorcing individuals filing paperwork in family court in a large Texas metropolitan county between June 2019 and July 2021 were asked to complete three surveys to explore stress factors related to the Covid Pandemic, stress related to divorce and technology usage during the pandemic. These surveys included: Measuring Divorce Adjustment by Wang and Amato, the Covid-19 Stressor Scale by Park, C. L., Finkelstein-Fox, L., Russell, B. S., Fendrich, M., Hutchison, M., & Becker, J. (in press), and a technology Usage Scale that consisted of a series of questions dealing with the types and frequency of technology used during the pandemic.

In addition to the surveys, participants provided demographic data. The demographic variables collected included: age, number of years divorced, gender, dependent children under 18, and income level. For ease of calculation, variables were grouped. Tables 3 and 4 show age groups and number of years divorced. To determine gender, respondents were asked to indicate gender as male, female, or other with a blank space to define gender. Since all 88 respondents identified as either male or female, gender for this study has two categories only. Income groups were classified as \$0-\$9,999, \$10,000-\$24,999, \$25,000-49,999, \$50,000-\$74,999, \$75,000-\$99,999, and \$100,000 or over (Table 2). Respondents indicated whether or not they had children under 18 years of age with a yes or no response (Table 1). As this was an open-ended questions several participants did not respond.

Table 1

Do you have dependent children under 18?

	N	%
yes	12	13.6%
no	43	48.9%
Did not respond	33	37.5%
Total	88	100.0%

Table 2

Household Income of Respondents

	N	%
No response	5	5.7%
\$0-\$9,999	5	5.7%
\$10,000-\$24,999	23	26.1%

\$25,000-49,999	21	23.9%
\$50,000-\$74,999	19	21.6%
\$75,000-\$99,999	6	6.8%
Over \$100,00	9	10.3%

Table 3
Age of Respondents

	N	%
18-29	9	10.2%
30-44	19	21.6%
45-60	44	50.0%
Over 60	16	18.2%

Table 4
How long have you been divorced?

	N	%
0-2 years	12	13.6%
2-5 years	16	18.2%
5-10 years	25	28.4%
Over 10 years	35	39.8%

Research Questions Although project participants provided much data, for this study the data was explored to respond to the following research questions:

1. Was there a difference in technology use during the pandemic between individuals who classify themselves as male or female?
2. Was there a difference in stress related to the pandemic between individuals who classify themselves as male or female?

Description of the Technology Usage Instrument The Technology Usage Instrument is a fourteen-item scale designed to determine technology use. The developer selected technology items that might be deemed to be particularly important for individuals experiencing family issues during the pandemic. Three graduate Ph.D. students in learning technologies reviewed the items to determine the practical

importance of each technology for use by divorced individuals involved in ongoing family disputes filed in family court during the pandemic.

The instrument used a four-point Likert scale of 1 to 4 with 1= I did not use this technology, 2=Less usage than before the pandemic, 3=similar usage before and during the pandemic, 4=More than before the pandemic. Table 5 shows the results of this survey.

Results

Gender Differences in Technology Usage During the Pandemic Scores were added across items to determine an overall technology usage score. Using an independent t-test, no overall differences in technology use between men ($M=36.63$, $SD=7.83$) and women ($M=37.09$, $SD=8.07$) $t(86)=-1.493$, $p=.139$) was apparent as measured by the total use of technology score. Utilizing an independent t-test to compare mobile phone usage for females and males, a significant difference was found between females ($M=3.51$, $SD=.505$) and males ($M=3.14$, $SD=.601$) conditions, $t(86)=-3.09$, $p=0.003$. An additional difference was found between females' ($M=3.32$, $SD=.724$) and males' ($M=2.80$, $SD=1.02$) $t(86)=-2.29$, $p=0.024$) use of social media during the pandemic. However, when female use of a dating website was compared to males, female participants ($M=1.66$, $SD=1.07$) reported a significant decrease in dating site usage when compared to males ($M=2.17$, $SD=1.20$) $t(86)=-2.09$, $p=0.04$).

Table 5
Technology Use During the Covid Pandemic

	Gender	N	Mean	df	p	Cohen's d
During the pandemic, I used webcams	Male	35	3.17	86	.82	.05
	Female	53	3.11	86		
During the pandemic, I used computers	Male	35	3.26	86	.27	-.23
	Female	53	3.43	86		
During the pandemic, I used mobile phones	Male	35	3.14	86	.00	-.67
	Female	53	3.51	86		
During the pandemic, I used drones	Male	35	1.71	86	.39	.19
	Female	53	1.53	86		
During the pandemic, I used a camera (video)	Male	35	2.83	86	.74	-.07
	Female	53	2.91	86		
During the pandemic, I used a camera (still shot)	Male	35	2.86	86	.97	.01
	Female	53	2.85	86		
During the pandemic, I used automated vehicles	Male	35	1.71	86	.92	-.02
	Female	53	1.74	86		
During the pandemic, I used video-based communication such as Zoom or Facetime	Male	35	3.26	86	.85	-.04
	Female	53	3.30	86		
During the pandemic, I used social media such as Facebook, Twitter, and Instagram	Male	35	2.80	86	.02	-.49
	Female	53	3.23	86		
During the pandemic, I used on-line educational opportunities	Male	35	2.71	86	.73	.07
	Female	53	2.62	86		
During the pandemic, I used dating websites	Male	35	2.17	86	.04	.45
	Female	53	1.66	86		
During the pandemic, I used the internet to file court related documents	Male	35	2.11	86	.39	.19
	Female	53	1.89	86		
During the pandemic, I used technology to participate in counseling sessions	Male	35	2.23	86	.86	-.04
	Female	53	2.28	86		
During the pandemic, I played video or internet games	Male	35	2.66	86	.14	-.33
	Female	53	3.04	86		
Total Technology Usage	Male	35	36.63	86	.79	-.06
	Female	53	37.09	86		

Gender Differences in Stress Related to Covid Project participants responded to a series of questions, the Covid-19 Stressors Scale, related to stress experienced during the Covid pandemic (Tambling, Russell, Park, Feindrich, Hutchison, Horton, & Tomkunas (2020), Park, Finkelstein-Fox, Russell, Fendrich, Hutchison, & Becker (in press). The scale utilizes a six-point Likert scale where 1=no stress, 2=minimal stress, 3=some stress, 4=stressful, 5=very stressful, and 6= extremely stressful. Seven factors were identified as causing greater than minimal stress for the responding group. These factors included:

- The stress level I experienced due to the risk of becoming infected with COVID
- The stress level I experienced due to risk of loved ones becoming infected
- The stress level I experienced due to reading about or hearing others talking about the severity and contagiousness of COVID-19
- The stress level I experienced due to changes to social routines (e.g., spending free time with friends/loved ones)
- The stress level I experienced due to cancellation of planned or scheduled celebrations, entertainment, vacations or trips (e.g., graduations, birthdays, concerts)
- The stress level I experienced due to uncertainty about how long quarantine and/or social distancing requirements will last
- The stress level I experienced due to potential changes to the national or global economy (e.g., future job prospects, loss of investments)

The levels of stress were summed across categories to obtain a total estimate of the level of stress related to the Covid pandemic. The overall scores obtained by females ($M= 67.79$, $SD=24.47$) were compared to the scores obtained by males ($M=64.74$, $SD= 21.85$ $t(86) -.597$, $p=.365$). No significant difference was noted between male and female stress related to the Covid pandemic. An analysis of the individual Covid stress items revealed no difference in individual items between males and females who responded to the survey.

Although responses were not different between genders, scores from the respondents did indicate at least seven stressful items were noted from respondents.

Discussion

The data set used in this research is quite large. This research is a first attempt at analyzing the data to determine if differences in technology use or stress related to the Covid pandemic was different between males and females. The literature looking at gender difference between males and females who are divorcing has been mixed with some researchers noting difference while other researchers note no differences. In the current study no differences in Covid stressors, However, it was noted that both sexes noted greater than minimal stress across seven items. Clearly, stress is occurring due to the Covid pandemic. Further research needs to occur to assist in determining the impact that such stress has on vulnerable, divorcing individuals.

Some differences between males and females concerning technology use was noted. Further research is need to investigate the role that technology plays in providing tools to individuals who are divorcing during extremely stressful times such as those presented during the Covid pandemic.

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Abstract

Since March 2020, the COVID-19 pandemic has forced most universities to ask professors, lecturers, and students to quickly adapt to a new type of examination taken on computers online and remotely. Information from many sources was collected from March 2020 to August 2020, including the synthesis of discussions from a community of university practitioners regarding remote exams. This document presents observations and recommendations for the proposal of new laws and the need for new provincial organizations. We also highlight research needs in training, methods, processes, and software to properly adapt to this new reality and prevent the many problems that were observed. As the Quebec writer Normand Baillargeon would say, ‘I have often had the opportunity to recall how negative effects of ICT manifest themselves, which were not

immediately suspected' (1). This issue will require concrete and rapid action on educational decision-makers to ensure sound preventive management of the many risks that appeared during this unexpected trial period.

Introduction

Many different modes of examinations appeared to be used during the COVID19 pandemic: remote exams, in-person computer-based exams, and person-paper-based exams. However, the pitfalls of using remote exams are not well documented. Taking an exam on a computer, whether in person and sometimes even remotely, is becoming an important issue in Quebec, Canada, and around the world. The Quebec Ministerial Examination of College French, which experimented with this approach, has already made headlines, and several issues and challenges have been raised (2,3,4,5). We can already anticipate journalists sharpening their pencils to attack the issues as soon as remote exams are rolled out on a large scale in Quebec. The front pages of newspapers will consider these issues: technological inequity, petitions from student associations, the problem of plagiarism and cheating, specialized needs of students with disabilities, intrusion of surveillance in our homes, hypersensitivity to WIFI, guidelines limiting the use of screen time, and more.

Thus, a discussion concerning possible alternative strategies for online exams is underway. For example, the use of oral examinations, longer assignments, iterative evaluations, or even collaborative evaluations. The proposals constitute alternative assessment methods that aim to avoid the use of computer-based examinations and their associated problems. These discussions are necessary following the mixed results from several universities that have tested or implemented pilot projects using computer-based and remote examination software.

Several stakeholders reported that they had already transferred their exams online before the pandemic began. They reported that they thought they were in a good position to deal with the requirement to offer exams remotely, but gradually realized that an exam taken remotely presented very different issues from exams taken online on computers in a supervised computer lab at their university.

The change from a paper-based exam to a computer-based exam

We would like to provide a list of issues raised during this research, carried out over six months, regarding the change from taking in-person paper-based exams to taking it on a computer (in class or remotely). We noted that this change required considerable effort and several iterations with each new exam. It was also noted that it is becoming urgent for each establishment to set up a techno-pedagogical function whose mission will be to improve this process, centralize requests for improvements to the examination technology used, publish a guide of best practices for effective surveillance, and ultimately, provide more training. However, at the beginning of this pandemic, everyone experimented in isolation to try to find an approach that led to a quality exam and the best student experience possible. The following are some of the lessons learned in the preparation for this change:

- a. Create clear and specific rules and instructions, so students know exactly what to do;

- b. Give short practice exams to familiarize students with the computer-based exam process and software;
- c. Explore how to reduce the possibility of cheating (use of random mode, short and long essay questions, analysis of answers, etc.);
- d. Ensure that students can reasonably complete the exam within the allotted time (the tendency has been to increase the number of questions on exams to reduce the possibility of having time to cheat);
- e. Design and review exam questions to ensure that they are well aligned with learning outcomes;
- f. Verify that exam questions appear correctly online;
- g. Check that the scoring and points are based on the complexity and difficulty of each question;
- h. Create and test a correction grid using the computer-based examination software;
- i. Try and 'pass' the exam;
- j. Present the exam to a colleague so that they can try the questions, comment on, and correct typos; and
- k. Consider the scoring statistics (results) to identify the pass profile for each question and make a decision on its actual validity.

Recommendations for creating a first computer-based exam

An initial recommendation is that teachers and lecturers have access to a techno-pedagogical specialist to learn from others rather than be left to themselves in this process. The transition from paper-based exams to computer-based examinations requires careful planning and testing. There are some useful recommendations for teachers.

Before the computer-based exam:

- a. Test the proper functioning of the computers and browsers recommended by the exam-taking software;
- b. Test the access codes beforehand for the different exam durations;
- c. Schedule one or more alternative means of taking the exam, for example, copies in Word, PDF, or paper format, in case of technical problems; and
- d. Schedule an additional supervisor in the case where a student is forced to take the exam in another room, in a virtual room, and to accommodate students with disabilities (SD).

During a computer-based examination:

- a. Give clear instructions regarding the last name, first name to be used when starting the exam in order to ensure that it can be validated against the class list;
- b. Have on hand a register of events to note entrances/exits, suspected plagiarism, technical problems, etc;
- c. Appropriately validate the identity, using the student card of each student at the start of the exam;

- d. Provide a reconnection procedure in the case where the student loses the connection, or it has been cut off, and wants to resume; and
- e. Check the exam software for the presence and activity of students during exams and crosschecks with the attendance list.

After the computer-based exam:

- a. Comment on the individual assessment/correction of certain essay questions using the grid, voice, or video recording;
- b. Check the Internet (and the underground Internet) after the exam to see if the questions have been made available.

The remote computer-based exam

Now that the topic of changing from a paper-based exam to a computer-based exam has been introduced, we will discuss the many difficulties of using a computer-based exam remotely. This also had to be quickly improvised by all stakeholders during the pandemic. Although it looks like a computer-based exam taken in class, we learned that it differs quite a bit. This very different way of taking an exam raised other, more complex issues that many professors, lecturers, and students had to deal with issues rapidly, and with little institutional support. Some of these issues include the following:

1. Awareness, knowledge and communications;
2. The modalities of these examination procedures;
3. The remote monitoring mode and its tools;
4. Video recording, data security and privacy intrusion;
5. Taking into account the needs of students with disabilities;
6. Technical assistance during the examination; and
7. The necessary equipment and environment.

There are other concerns about hybrid and multimodal teaching and examination patterns that we will address in a future study.

The following seven sections present findings and proposed solutions to the challenges and problems reported during the preparation and removal of exams remotely on computers during this pandemic.

1. Awareness, knowledge and communications

Remote exams on computers are a new experience for many. Awareness about the many rules, knowledge about the technology and communications between the university and the professors, the university and the students, and the students and professors created confusion.

At the onset of the pandemic, university professors and lecturers were mostly left to fend for themselves when deciding how to communicate remote exam guidelines to students. As the pandemic progressed in subsequent semesters, university administrations began to provide instructions and directions that were sometimes different. However, the scope of these communications was initially quite limited. Here is a summary table of the awareness, knowledge, and communications activities reported by each Quebec university:

University	Awareness, knowledge and communications activities
Bishop's	Training workshops offered for teachers to use remote monitoring software and explore alternative strategies for remote exams.
Concordia	Raising awareness of teachers to alternative assessment strategies. Communication campaign aimed at making students accountable for the academic integrity of their work.
ENAP	Willingness to move towards assessment strategies focused on authentic activities within the framework of active pedagogies. Sensitization of teachers not to individually set up a remote monitoring system by webcam.
ÉTS	Raising awareness among teachers and students about the remote monitoring of exams on the ZOOM platform and exams on MOODLE.
HÉC	All professors and lecturers were instructed not to take any isolated exam monitoring initiative with ZOOM or other software.
INRS	Raising teachers' awareness of alternative assessment strategies.
McGill	Raising awareness of teachers to alternative assessment strategies. Each student completes training on academic integrity at the start of the year.
Polytechnique	Communication and dissemination of management messages concerning the modalities related to remote final exams and possible accommodations.
TÉLUQ	Development of exams for which students have access to course sites, all their materials and the Internet. Review of exams and development of exams in more sustainable formats.
U Montréal	Raising teachers' awareness of alternative assessment strategies. Promotion of the value of integrity (website, video clips, podcasts, tools for preparing exams and assignments) with an "I am honest" campaign. Clarification of the process to be followed when there is suspicion of plagiarism.
U Sherbrooke	Encourages teachers to use alternative assessment strategies. Awareness of the value of intellectual integrity.
U Laval	Recommends adapting, revising and diversifying the methods of evaluating learning so as to avoid or minimize the use of remote monitoring, whether in person or online.
UQAC	Professors and lecturers are supported by the virtual service center to adapt their assessment (essay questions, oral exam, etc.) and maximize the use of MOODLE features. Plagiarism prevention training. Possibility of conducting examinations in person.
UQAM	Encourages teachers to rethink the format and type of examination questions.
UQAR	Teaching resources were invited to develop alternative modalities to traditional exams to assess the acquisition of knowledge and skills by students. The techno pedagogues supported teaching resources to identify and implement alternative methods. They prepared material to inform resources of the issues and limitations inherent in alternative methods.
UQAT	Teaching resources were invited to develop alternative modalities to traditional exams to assess the acquisition of knowledge and skills by students. The techno pedagogues supported teaching resources to identify and implement alternative methods. They prepared material to inform resources of the issues and limitations inherent in alternative methods.

University	Awareness, knowledge and communications activities
UQO	Raising teachers' awareness of of alternative assessment strategies. Training offered on assessments.
UQTR	Encourages teachers to rethink the format and type of examination questions.

It has been reported that raising awareness is good, but training is now becoming essential. In addition, a consensus is emerging on the need for more study and research into the inherent limitations of each evaluation strategy and to question the fairness of the results. Will learners from different socioeconomic backgrounds achieve the same level of performance given the use of computer-based exams? These discussions allowed us to identify a pattern of best practice outreach that should be considered to ensure consistency across the network.

Raising awareness and providing training to teachers:

- a. Develop a detailed guide describing alternative and assessment strategies for each grade level for online exams taken remotely;
- b. Involve teachers from all levels in the experimentation of these approaches and the validation of a Quebec provincial guide and its technological tools;
- c. Specify consistent guidelines regarding remote exams in educational institutions and lesson plans for the Quebec province; and
- d. Set up a provincial center for the delivery of virtual exams to support and train the many techno educators in the network on best practices in online assessment and the evolution of the technological tools available to them.

Raising awareness and providing training to students:

- a. Carry out a wide campaign to promote academic integrity in Quebec. Provide a short provincial multilingual online self-learning training course, adapted to students with disabilities, regarding academic integrity. This short course would be followed by a brief mandatory online exam that requires a certain passing grade.
- b. Clear communication at the level of the establishment and lesson plan of the rules and distribution of messages concerning the modalities related to remote exams and possible accommodations.

2. The modalities of examinations during the pandemic

During this pandemic, the examination modalities (e.g. in person, remote without surveillance or with surveillance) was impacted by the way a course was taught. It was observed that a remote computer-based exam was sometimes offered even if the course was given online, co-modal (meaning sometimes in class sometimes remotely), or in a hybrid format (both in class and remotely). In certain cases, the university course plan specified the modality of the exams, here is an example from ÉTS: "By registering or remaining registered for the 2021 summer session, you accept the particular conditions of the 2021 summer session. If you do not agree with these terms, you have until May 7, 2021, to unsubscribe from your courses and be reimbursed." This meant

that a student had did not want to accept the remote computer-based exams guidelines/regulations could abandon the course. In some Quebec universities, these modalities were left to individual professors and lecturers to determine.

Regarding the format of online exams, we observed that most professors/lecturers opted to only make the paper version of their exam available online (in Word or PDF format). Students log on at a certain time to download the document, write their exam on this document, and upload it before a certain time. Most of these examinations were not surveillance. We call this exam modality in this paper a 'traditional approach' because the exam was not really moved to a specialized examination software in this case. Universities with law, engineering, and medicine degrees tended to tighten these exam procedures by asking the students to open their camera to reassure their professional orders. Various academic institutions have been left to their own devices regarding the issuance of guidelines for the conduct of remote computer-based exams. For example, at the ÉTS, a directive was communicated concerning "remote monitoring, which will be done using the computer's camera and microphone and can be recorded. This is necessary to comply with the requirements of the Canadian Engineering Accreditation Board (CEAB) to ensure the validity of assessments."

Other universities quickly clarified, on their student portal, the instructions/guidelines for remote computer-based exams (7). From all these guidelines, the following pattern emerged regarding the remote computer-based exam strategy:

- Use of both alternative and traditional examination approaches: fourteen establishments;
- Use the same examination approach present before the pandemic: five establishments; and
- Use of different platforms/technologies for remote computer-based exams: three establishments.

Students with disabilities (SD): The variety and number of platforms used to notify professors of the presence of students with disabilities in their classes. It was different from one university to another. However, the main adaptation measures for students with disabilities are limited. For example: 1) increasing the duration of the exam, 2) allowing the exam to be taken in another room, and 3) the option to use a headset during the exam because the exam was dictated or to help concentration.

MOODLE software: MOODLE software has been used in several cases. MOODLE is free software that is adapted/customized by each university. It was reported that the use of the 'homework' option to share paper-based exams was widely used. This approach consisted of making existing exams available without automating them. However, for those who decided to create online exams, they reported that the technical complexity of MOODLE, with many hidden options that were difficult to use without proper training (e.g., correction), was a hindrance to its use except for exams with simple true-false and multiple-choice questions. Unfortunately, MOODLE does not have any advanced features that would allow collaborative assessment or advanced features for SD students. There is also a consensus that there is a great need for research on the equity between remote exams, person-computer-based exams, and person-paper-based exams to better understand the inherent limitations of each of these evaluation strategies. Eight recommendations result from the analysis of discussions among universities:

- a. Perform pre-testing with students to familiarize them with the exam format (i.e., use of a testing platform);

- b. Identify a simpler-to-use exam platform that allows for the use of built-in and easy-to-use remediation support tools;
- c. Prefer the exam be taken on the establishment's computers with physical supervision;
- d. Provide equipment on loan for those who need it;
- e. Ensure a high level of security for the exam platform;
- f. Determine a reconnection procedure for resumption of the exam in the event of session loss;
- g. For the longer term, tools allow an evaluation specific to the collaborative context (7); and
- h. Add functionality for SD students so as to meet their specialized needs.

3. Remote monitoring modality and tools

Different interpretations of the modalities and tools for remote monitoring were raised throughout the committee discussions. The lack of uniformity in the rules of remote monitoring, many petitions from student associations, technical problems, differing observations regarding the effectiveness of remote monitoring, and the vagueness of legal opinions concerning remote monitoring have led to mixed feelings regarding the use of remote examinations during this period. This is the breakdown of use among committee participants.

- No remote monitoring: six establishments;
- Remote monitoring by the establishment's internal resources: six establishments; and
- Remote monitoring by an external proctoring company: five establishments.

ZOOM was observed to be the most popular platform for remote monitoring of examinations by lecturers and/or teachers. Gradually, some Quebec universities succeeded in supporting professors and lecturers by replacing them in this role with students on contract. Some establishments opted for external proctoring services such as Protorio, Wetest, Taipus Monitor, and Compilatio.

Little, if any, training or instruction has been given to teachers, lecturers, and supervisors regarding the remote monitoring procedure. There are still few establishments that have established procedures for remote monitoring. During telemonitoring, stakeholders revealed that it was difficult to identify the behavior of a cheater and how to act concretely when there was suspicion of plagiarism during examinations. Other difficulties observed were the difficulty of validating identity, the size of the supervised groups, the ratio of supervisors per number of students, the arrangement and visibility of the camera image, the rules concerning using the toilet, using headphones, and many other aspects.

Consequently, most establishments are of the opinion (although they did not offer any supporting data) that plagiarism offenses would be on the rise and that it would now be a serious problem, even with the use of external services that have proven to be expensive and relatively inefficient. In fact, very few detailed reports of plagiarism have been reported. Therefore, there was a lot of suspicion, but there was little proof.

There was general consensus with respect to the other issues raised: identity fraud (i.e., spoofing), communication between students during the exam, access to online exam question banks, the use of more than one device during the exam, and the use of headphones, veils, hats, or earmuffs; and the emergence of the use of illicit exam-taking firms. According to an ongoing study (10) by Professor Sarah Eaton at the University of Calgary, there are currently a small number of private firms specializing in exam writing in Canada (i.e., contract cheating). She states that this market is now a 15 billion USD market. These companies solicit students using social networks (i.e., Kijiji, TikTok, Instagram, and YouTube) and directly with targeted advertisements on the Internet (e.g., paperleaf, bonnenote.fr, calsslep.com, onlineexamshelp.com).

Controversial effectiveness of exams with only true-false and multiple-choice questions

The use of a digital assessment system started a debate among participants about the ineffectiveness of exams containing only true-false questions and multiple-choice questions. This debate reveals a generalized consensus that these timed and supervised tests would only value what students could remember, which would reinforce an entirely memorization-based approach to teaching and learning. This is particularly true in situations where lecturers and professors tend to increase the number of questions on an exam and reduce the duration to limit the possibility of plagiarism. This caused stress among students and demands from student associations. There was general agreement that it would be desirable for future exams to include alternative assessment approaches that would focus on how students synthesize, apply, and interpret knowledge.

The following recommendations for remote modalities and tools can be drawn:

- a. Make an inventory of alternative approaches to remote assessment and publish it widely;
- b. Conduct studies on best practices, procedures, and tools for remote monitoring of examinations;
- c. Quickly introduces a new Quebec law that makes cheating businesses illegal in Quebec (as in New Zealand, Ireland, Australia (11) and the United Kingdom);
- d. Create a provincial body to monitor the Internet (and the dark web), local and international cheating companies, and detect emerging chatting technologies;
- e. Prefer an alternative examination method that does not require remote monitoring, which takes into account the requirements of professional orders;
- f. Prefer the exam be taken on the institution's computers with physical supervision;
- g. If remote monitoring is chosen, determine more effective means of validating identity;
- h. Standardize the remote monitoring procedure and tools, for example, size of subgroups per supervisor, issue management, handling of technical issues, processes, and tools for SSTD students and provide the associated training to teachers and students;
- i. Ensure publication and training regarding clear rules of academic conduct supported by observation/evidence collection processes;
- j. Create a procedure to validate the physical environment that is conducive to an exam (e.g., being alone in the room, cell phone out of the student's reach and visible to the camera);
- k. Analyze, experiment, and select remote monitoring technologies, integrated into a single provincial remote monitoring platform, concerning:

- Browser lock-down, keyboard spying and monitoring of competing active programs;
- Sharing restriction settings: prevent more than one screen, prevent screenshots taken, prevent the use of virtual machines, and restrict remote access;
- The number and disposition of remote surveillance cameras and microphones;
- Artificial intelligence-assisted remote monitoring techniques that monitor the keyboard, the student's biometric signature, workstation, the use of additional screens, telecommunications, cell phone use, IP, texting;
- Monitoring the Internet (and the underground Internet) for the presence/sharing of questions during an exam; and
- Verification, after review, that the submitted text is not plagiarized from other texts submitted for review and from external sources (i.e., the Internet and the underground Internet).

1. Finally, we always consider that exam questions may end up in circulation during and after an online exam.

4. Video recording, data security and privacy intrusion

The topics of video recording, data security, and invasion of privacy involved broad discussions. Some establishments did not monitor the exams because the legality of using cameras/surveillance services was unclear. No provincial guidelines have been issued for this subject. There were difficulties in interpreting the law regarding the right to film a student in his residence.

Although at most institutions consent was requested before monitoring a student during their remote exam, some student associations still objected to this for data security and privacy concerns. Some establishments reported that before starting an event, participants were required to film the room they were in, including the ceiling and underside of their worktables. Student associations wrote petitions specifying that they were not comfortable with their members, revealing the contents of their place of residence and opening their camera to supervisors from their university, but especially to supervisors located in India and elsewhere in the world. There is also some fear regarding the malicious use of personal data and recordings. Some of these external private firms have published that they keep exam recordings on a server outside of Quebec for a year. Concerns have also been raised about students who have children, elderly parents, or roommates and who may be penalized by these particular monitoring situations.

This controversial consent: 'to be monitored during an exam' required at the beginning of an exam, was challenged by student associations who do not approve of this obligation imposed which states 'those who refuse to consent will have to withdraw from the course requiring remote computer-based exam surveillance, with or without a fee depending on the date of 'withdrawal'. Controversy has arisen for the same reasons at the University of Ottawa.

Regarding the verification of the identity of students at the beginning of a remote computer-based exam, institutions have opted for different approaches. Among the committee participants:

- Verification of student ID allowed: nine establishments;
- No verification of student ID: six establishments.

In addition, some institutions that used specialized remote monitoring services forced students to use two cameras, causing more difficulties associated with their acquisitions (e.g., price and availability) and correct operation.

In terms of data security during remote online exams, little action other than the use of browser isolation software and monitoring services by specialist firms took place. Despite these mechanisms, it was reported that students used all kinds of schemes to share exam information during the exam. Some examples are listed below:

- a. Screenshot and send to a friend, hired external student, or contracted a cheating company;
- b. Share your user ID/passwords with another person;
- c. Mirror or broadcast the screen to another screen and another person participates;
- d. Use small "Bluetooth" equipment undetected with current tools;
- e. Use smart calculators, smart phones, etc. to access information;
- f. Use sticky notes and writing on the hand or on the arms; and
- g. Use your environment to hide information (e.g., sheet below the desk or on a wall).

Finally, there was no consensus on the ratio of supervisors needed per number of students. There was also no consensus regarding observable and confirmed violations from one establishment to another using remote monitoring.

From these observations, several recommendations can be made:

- a. Perform research regarding the procedure and tools to monitor data sharing/questions during exams;
- b. Obtain legal advice regarding the right to monitor/film a student as well as the identification of clear rules for use/retention/access to this data;
- c. Set up a Quebec wide remote examination monitoring center:
 - o Only allow remote monitoring and data retention with ISO9001 + ISO27001 certified firms located in Quebec;
 - o Establish a provincial ratio establishing the number of supervisors per number of students during remote exams; and
 - o Establish uniform rules of supervision supported by video surveillance.
- d. Ensure disconnection after inactivity;
- e. Add double identification and data encryption;
- f. Have unique connections per exam participant;
- g. Control over who can connect to the exam (e.g., depending on the IP range and time); and
- h. Do not leave the responsibility entirely to lecturers and teachers regarding the remote monitoring of their exams.

5. Taking into account the needs of students with disabilities

Students with disabilities have been impacted by this rapid change, and their special needs have been addressed in a reactive and limited way. The following lists some of the adaptation universities:

- a. The most popular adaptation was the level of additional time granted to these students. Accessibility issues were raised in this context. Students with dyslexia, autism, or with a learning disability related to writing encountered problems that were not addressed by the additional time to complete the exam;
- b. Students who, for physical reasons, only use computer keyboards (and not a mouse) to browse the exam also reported problems. Additionally, other students who used the mouse but who had problems with fine motor control also reported problems;
- c. Visually impaired students did not have access to magnifying glasses/zoom functions, text contrasts, adapted wallpaper colors, font sizes, the voice translation of the question, or the choice of answers had they took the exam in person;
- d. Students with autism spectrum disorder did not have access to color palettes recommended for their disability in the exam tools; and
- e. Other issues were reported when taking online exams, for example, some students reread aloud, as it helped them better understand the question. However, from a distance, foreign supervisors, with their microphones open, believed the student was dictating the question to another person. This led to confusion and interruptions during the examination. Another student, who was allowed to wear a headset, was called to remove it.

From these many situations, recommendations can be made:

- a. Integrate current available tools into the student's online exam platform so that they do not have to use multiple devices during the exam;
- b. Use international standards and accessibility recommendations systematically for remote examination software (e.g., WCAG A, AA, and INS HEA-Module 16);
- c. Carry out studies regarding additional software functions to be made available directly in an application on a secure browser, during remote computer-based exam, to help students with motor, organic disorder or visual impairments, attention deficit, learning disability, autism spectrum disorder, and mental health disorders. Some of these options are listed below:
 - Customization of fonts (sans serifs), colors, text size, wallpapers, contrasts, left alignment (9);
 - Present a bar specialized by handicap;
 - Easy use of the keyboard only;
 - Easy use of the mouse only;
 - Answer questions using symbols;
 - Using the USB or Bluetooth drawing tablet;
 - Answer a question verbally;
 - Dictionaries and language correctors;

- Navigation aid;
- Audio and video including captions or text-based scripts;
- Image description by voice;
- Controlled audio playback with word highlighting and text selection;
- Prediction and abbreviation of words;
- Zoom and magnifiers and digital rulers;
- Syllables in colors or underlined;
- Pale silent letters;
- Space the words and increase the line spacing;
- Indentation of paragraphs;
- Limit the number of characters per line (55 max.);
- Color the lines of a text alternately;
- Identify graphemes or phonemes;
- Digital Braille (beach, keyboard or USB or Bluetooth notepad);
- Specialized paper examination (e.g., braille, raised tactile image, etc.);
- Countdown and clocks; and
- Lexibar.

d. Offer specialized and adapted functions in the same examination software, which allows each SD to have access to specialized tools; and

e. Make these tools available to ensure that these students are familiar with their use well in advance of taking important summative exams.

6. Technical assistance during the examination

Regarding the technical assistance required during an online exam or a remote online exam, institutions have used varying means. Several teachers reported not being able to verify whether a student's complaints about technical issues were valid. In a few reported cases, a technical problem interrupted the examination, without the possibility of resuming it.

Some teachers had planned for this possibility and had solutions in the case of technical difficulties. Various problems were described: problems with Internet connection, problems with accessing the exam, shutdown during the exam, service outage, and unstable exam software.

In order to minimize the risk of a technical incident during the remote online examination, some establishments requested students perform various tests beforehand or that they connect 20 to 30 minutes before the examination start time to carry out preliminary tests. Others offered phone numbers to contact for problem support and even provided procedures that described what to do if something went wrong. The following recommendations can be made:

- a. Thoroughly test the hardware and software before the exam begins;
- b. Communicate ways a student can obtain assistance;
- c. Design the assessment so that intermittent technical issues are less likely to cause critical difficulties for students;
- d. Monitor exams with an automated event log, via system administrators, who can confirm the veracity of reported problems; and

e. The use of remote desktop software by system administrators could help students solve problems.

7. The necessary equipment and environment

With respect to the equipment needed to complete a remote online exam, institutions made varied and sometimes confusing recommendations. Consequently, all kinds of technical issues were reported regarding the use of software and certain equipment (e.g., some Android tablets, surface, chromebook, Linux environment, and use of virtual machines).

Some institutions described the required equipment and software and insisted on meeting the minimum system requirements. In some institutions, the student had to have access to a computer, a microphone, one or two cameras, and an Internet access of 10Mb/s or more, which is higher than Canadian recommendations (12). Some student associations criticized these costly and last-minute requirements as well as the ability to master technical recommendations of complex configurations with little explanation and support.

Questions of fairness were raised: will a lower-than-recommended Internet connection penalize students who do not have access to such a high-performance service? Faced with the technical insufficiency of student computer equipment, some institutions offered to lend equipment to students, but this option was difficult to find even for lecturers and professors. Issues regarding popup blockers, VPNs, firewalls, and browser behavior have also been reported.

The following table describes the topics that were well explained/supported before the start of a remote exam.

Computer and cell phone	-Required specifications for desktop, laptop or notebook computer, e.g., HP ZBook Studio G5. -Mobile phone (for the use of its camera)
Accessories	Screen, keyboard, mouse, microphone, camera, speakers, scanner, printer, USB ports, minimum memory ex: 4 GB and more. If the computer is not connected to an outlet then its battery must operate for at least 3 hours
Software	French/English operating system, French/English utility software (browser), French/English online training software, French/English exam software and French/English SD help software
Network	WiFi or wired, speed recommendation for both upload and download
Configurations	Required configuration changes to the student's computer for the remote online exam
Environment	Without external noise, without the presence of another person and sufficient lighting to see your face well

Recommendations can be made to this effect:

a. Clearly specify whether equipment and software are supported and offer a solution to the student if their equipment/software is not compatible;

- b. Provide a hyperlink to an automated service that allows testing of equipment, software, and special configuration compatibility well in advance of a remote online exam;
- c. Provide detailed installation, configuration, and diagnostic instructions (textual and video) for all supported equipment/software;
- d. Make a help center available during the exam period in case of difficulties; and
- e. Communicate ways a student can obtain assistance.

Conclusion

In conclusion, this paper highlights many issues for which there is a great need for further research. These include the limits inherent in each new assessment strategy with the objective of better understanding its impact on students, especially those from different socioeconomic backgrounds and those with disabilities. In addition, an investigation of alternative remote assessment approaches should be carried out to determine the preferred remote assessment strategy or strategies in the future.

In addition, this document emphasizes the need for lecturers and professors to have more knowledge and a better mastery of examination processes and software, supervision, and specialized functionalities adapted for students with disabilities. There is also a question of proposing new laws, organizations, and functions governing this new area, particularly with respect to the security of student data.

A big challenge for the future of remote online exams will be to support the various stakeholders by offering training, guidelines, and procedures for the shift to be successful. Information campaigns regarding ethics and cheating will be necessary to educate all stakeholders and highlight the advantages rather than the disadvantages of this project.

The merits of these new technologies must be recognized, and we know that they are here for good. Therefore, we must move slowly so as not to import unconfirmed technologies too quickly and initiate major changes that affect many stakeholders without identifying the risks and losing sight of the need to better control each of the issues mentioned above.

Managing change requires controlled progression through several stages before advancing to a level of high proficiency and mastery of a new area of knowledge. Therefore, it is necessary to seriously assess these issues and identify solutions validated with the help of independent experts. We end this article with another quote from the writer Normand Baillargeon: 'It is not the technologies in themselves that interest students and teachers, but the content to which they allow access' (8).

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Title: Education in the Principles and Practice of Innovation

Topic area: Business Education

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Abstract:

Education in the Principles and Practices of Innovation.

Innovation is promoted as the primary contributing factor to the success of industries, systems, and services. Economies and organizations of the world agree that innovation is key to being successful in our modern age, where people who possess an innovative skill set are in high demand. Consequently, there is a need to ensure that students are developing the mindset and skills to be innovative.

Innovation is defined as “the successful implementation of creative ideas within an organization”. Most scholars agree that creativity is having original ideas that are useful. This paper describes the teaching of the principles and practices of innovation using the USERS model. USERS is an acronym for understand, shape, explore, refine, and share.

Understand: to use practices of observation, experience, and inquiry to gather creative material about the opportunity space.

Shape: organizing, simplifying, and clarifying of the creative material to create an opportunity question.

Explore: develop divergent ideas stimulated by asking questions, comparing, or combining inputs to thoroughly interrogate the opportunity question.

Refine: to visualize, validate and iterate, to focus ideas into a concise proposal.

Share: to communicate your proposals by showing, describing, and demonstrating concepts.

These are the principles and practices. But how do you evaluate innovation? Using tools such as flexibility, fluency, elaboration, and unique and useful balance creative ideas can be evaluated. These principles and practices have been developed and taught in a structured creativity course, an innovation boot camp, and corporate design thinking seminars with positive results in attendees expressing they have been taught a new way to think.

Finding Bisexuality: A Literature Review Exploring Bisexual Perceptions and Bisexual Erasure
Within Film Media

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Abstract

Though the better parts of society work to achieve a more equal world there are still many minorities that are overlooked. Bisexuals are a minority group that continues to face many struggles for acceptance, equal rights, and representations, even as we move through the 21st century. Media often ignores, overwrites, or erases bisexuality from the spectrum of possibilities, leaving a hole in society's understanding of the sexual minority. Bisexual erasure and bisexual negativity within film media lead society to believe that this world is a world of either/or with regard to sexual orientation, when that is simply not the case at all. While bisexuality's existence challenges the gay/straight dichotomy that has ruled society's viewpoint of sexual orientation, bisexual erasure leads unknowing individuals to believe that any sexuality that falls outside of that dichotomy is wrong or does not exist. Within film media, bisexuality is treated as a taboo that cannot be discussed: bisexuality's erasure in media leads society to believe it cannot exist, which in turn erases a whole minority group – a minority group that has worked just as hard to be accepted not only by the heterosexual community but also the homosexual community. Due to media erasure, society believes bisexuality isn't real, bisexuality is a phase, bisexuality is a kink, or bisexuality does not belong – none of these are accurate representations of this sexual minority. This literature review will explore the impact of film media on bisexuality, looking deeper into how bisexuality is shaped by media representations and how film media can shape the perceptions of not only society, but of bisexual individuals as well.

Introduction

Within the study of bisexuality, there is little literature that explores the implications of film media on the orientation. Bisexuality has been part of our society for years, yet very little work has been done to explore why the sexual minority group is seen as so much less than the other sexual orientations. It is common to hear about lesbian and gay representation, yet it is rare to hear about bisexuality in the same context. This literature review explores the state of the field of bisexuality and film media and dives into how the development of film media has both helped and hurt the development of bisexuality as a valid sexual identity.

This literature review explores the concept of bisexual erasure and how it is implicated in film media today. Shiri Eisner defines bisexual erasure as “the widespread social phenomenon of erasing bisexuality from any discussion in which it is relevant or is otherwise invoked (with or without being named) ... bisexual erasure means, among other things, a lack of representation, lack of communities, lack of awareness, lack of speech, and lack of acknowledgement. It means that most of the time, most of our culture operates under the presumption that bisexuality doesn’t – and cannot – exist” (Eisner, 2013, p. 66-67). Bisexual erasure is evident throughout society but is seen especially clearly in film media, where bisexual representation is limited and exposure to the orientation is often incorrect. This literature review discusses the state of the field in three areas: (1) The bisexual individual’s perception of bisexual erasure within film media, (2) The shaping of bisexual identity through film perception, and (3) The impact of film media perceptions of bisexual’s sense of self.

The bisexual individual’s perception of bisexual erasure within film media

Within the field of bisexual studies, Shiri Eisner’s *Bi: Notes for a Bisexual Revolution* (2013) outlines the many perceptions of bisexuality from the viewpoint of both a scholar and a

member of the sexual minority group. Eisner's chapter, entitled "Monosexism and biphobia," explores more deeply the perceptions of bisexuality from monosexual individuals (which can include heterosexual and homosexual viewpoints). Eisner puts a strong emphasis on the celebration of differences, especially within the LGBTQ+ community. In her eyes, the act of combining sexual orientation minorities erases the differences that they may experience as a part of their sexual identity, thus rendering any differences they experience as invalid and/or less important than the features that unify the groups.

Eisner's research shows that, when considering film characters of varying sexual orientation, "heterosexual viewers stated that ... bisexuals are their least favorite film characters" (Eisner, 2013, 67). Along with this reported statistic, Eisner reported that "out of nearly 127 hours of British television examined, only five minutes and nine seconds were devoted to depicting bisexual characters" (Eisner, 2013, 67). That is less than 0.001% of the hours of television depicting bisexuality in the study. When bisexuality is depicted in film, "bisexuality is often used to represent anything but itself (often to underline characteristics such as murderousness, duplicitousness, hedonism, etc.), while erasing bisexuality as a topic in its own right" (Eisner, 2013, 67). Therefore, when bisexuality is shown, it is used more as a characteristic than an identity, leading to forms of erasure that only highlight the negative characteristics and traits tied to bisexuality. Historically, even when individuals state that they are bisexual, "they are generally spoken of as either heterosexual or gay/lesbian (for example, Freddie Mercury, Virginia Woolf, or Lady Gaga)" (Eisner 2013, 67), thus invalidating the individual's identity claim and orientation. Eisner discusses why society may choose to ignore the label of bisexual, making connections to the acceptance of bisexuality as "a hinderance to assimilationist gay goals" (Eisner, 2013, 71). Eisner analyzes and discusses how the biases of

monosexism impact societal perceptions of bisexuality, and how media can play into the negative stereotyping and stigma associated with the sexual minority group.

Hannah J. Johnson (2016) recently published a study entitled *Bisexuality, Mental Health, and Media Representation* to further explain perceptions on bisexual erasure in media from individuals within the sexual minority group. Johnson claims that biphobia and monosexism “are omnipresent in media, reinforcing the idea that attraction to more than one gender is inherently unnatural, immoral, disingenuous, and/or invalid” (Johnson, 2016, p. 379). These negative stereotypes are enforced by media representation and add to the minority stress experienced by bisexual individuals, since they not only experience effects of homophobia from society, but also a disconnect from the lesbian and gay community (Johnson, 2016, p. 379). Our monosexism–focused climate leads to increased mental health complications in individuals who identify as bisexual, yet “the reality is that many [bisexual individuals] are afraid to seek help for fear that they will face biphobia from health care providers, especially if that is a problem they have encountered before” (Johnson, 2016, p.380). The side effects of existing in a state of constant disconnect from community continue to go untreated in bisexual individuals.

Johnson (2016) continues to analyze the stigmas enforced by mainstream media when considering bisexuality. “In mainstream media, female bisexuality is oversexualized, and male bisexuality is erased, contributing to damaging stigmas about bisexuality in general” (Johnson, 2016, p. 381). Negative stigmas are then reinforced through media portrayal and perception, despite the fact that “individuals who are bisexual perceive media portrayals of bisexuality as lacking” (Johnson, 2016, p.389). Depictions of bisexuality analyzed in this study portray bisexual individuals in a light that depicts bisexuality as a symbol for “the most negative aspects of human nature” (Johnson, 2016, p.383). These depictions then are often society’s only

exposure to bisexuality, allowing for negative media perception to “reinforce misconceptions held by the general public, resulting in a cycle of biphobia that is transmitted through media to society, who then produce more biphobic media” (Johnson, 2016, p. 386). Johnson’s research shed light onto the perceptions of bisexuality as they are perceived by bisexual individuals, as well as how these perceptions shape society’s viewpoint and how the media plays into the creation of stigma through perception.

In research published by Alon Zivony & Tamar Saguy (2018), the perceptions of bisexual women were recorded based on stereotypical knowledge and preconceived notions about bisexuality. The scholars reported that “firsthand reports from bisexual individuals suggest that bisexuals are perceived by heterosexuals, gay men, and lesbians as (1) confused, (2) sexually promiscuous, (3) less disposed to monogamous relationships (henceforth, nonmonogamous), and (4) untrustworthy” (Zivony & Saguy, 2018, 666). These accounts from bisexual individuals identify the present bias towards individuals within the sexual minority group, and provide examples of the stereotyping of bisexual individuals by society members who do not identify with or understand bisexuality as a valid form of sexual identity expression. In addition to the stereotypes attached to bisexuality that are outlined above, Zivony & Saguy also found evidence of a belief that bisexuality is a “less stable sexual orientation than heterosexuality and homosexuality” (666), as well as the belief that bisexual men are “often considered to be closeted gay men who are lying (to their partners or to themselves) in order to hide from the social stigma revolving around same-sex behavior in men” (673-674). Zivony & Saguy’s research illuminates the ways in which negative perceptions of bisexuality, as reported by bisexual individuals, connect the sexual orientation minority to negative stereotypes and connotations, leading to negative portrayals and understandings of bisexuality and the individuals who identify with the

orientation. All of the evidence mentioned above confirms Zivony & Saguy's claim that "bisexual stereotypes are deduced, rather than learned" (667), indicating that there is not a clear understanding of what bisexuality is. Therefore, society is left to assume and deduce the roles that bisexual individuals play, which contributes to the negative attitudes tied to bisexuality.

The Shaping of Bisexual Identity Through Film Perception

William E. Burleson's book "Bi America: Myths, Truths, and Struggles of an Invisible Community", published in 2005, dives into the world of bisexuality through both his own experiences and those that he found through research. In his book, he connects the concept of sexual orientation to appearances and relationships. "Most people make assumptions about sexual orientation according to the gender of one's partner" (Burleson, 2005, 15), and it is this assumption that allows for bisexuality to be invisible. Burleson notes that "it is unusual for anyone but straight people to appear as central film characters. This must be especially difficult when the film is a biography of a bisexual person, but this is usually handled by merely ignoring the uncomfortable facts" (Burleson, 2005, 17). Through denial of the bisexual existence, members of the bisexual community are then left unacknowledged and with little understanding of their orientation and lifestyle. "Bisexuals are pressured into accepting the label of gay or lesbian and joining the community, pressured into choosing between their relationships and being authentic" (Burleson, 2005, 19). Burleson shares the following in response to the lack of representation of bisexuality in media:

Such a lack of representation is born of a desire to understand the world by simplifying it. Wouldn't it be easy if there were only two kinds of people? If there were only two answers to every question, yes or no, right or wrong, or only good or evil? No grays, only black and white? ... and everyone is exclusively heterosexual or absolutely homosexual?

Although that world may be easy to understand (if incredibly boring), it is also not *this* world. This world is full of grays, not to mention pinks, greens and yellows. There are very few absolutes, especially when talking about humans. We are, to our benefit and our detriment, complex, multifaceted, unpredictable, and unique. We do not fit into little boxes well. As convenient as it would seem to be, we are not simply heterosexual or homosexual. (Burlison, 2005, 18)

The world was not built for the either/or standing that the gay/straight dichotomy has created, therefore bisexuality is often left unseen, since it does not fit the version of society that the dichotomy is attempting to portray.

Nicole Richter's (2013) review published in the Journal of Bisexuality entitled *Bisexual Erasure in 'Lesbian Vampire' Film Theory* expanded the understanding of bisexual erasure in media through ignorance and appropriation. Richter explains that "bisexuality is usually constructed as an absence, as evidenced by the fact that bisexual characters on television and film are rarely named as such" (Richter, 2013, p. 274), implying that erasure occurs through "appropriation without representation" (p.274). Richter applies the appropriation of bisexuality to the lesbian film genre, exploring more closely how the genre has taken lesbianism and bisexuality to a level that creates appropriation without representation. Richter looked carefully at the films "Blood and Roses," "The Hunger," and "Daughters of Darkness," and explained how each of these films takes a "bisexual plot" and turns it into a lesbian vampire film. Within each of the films, the main character is attracted to or with a man, and then is with a woman. Since this transition between partners is never labeled as bisexual, it allows for appropriation without representation to occur, using same-sex partnerships to label the relationship as lesbian rather than naming the characters as bisexual (Richter, 2013). In Richter's study, it was found that

“visibility is inherently problematic for bisexuals because they are generally read through visual codes of being gay or straight depending on the sex of the person they are in a relationship with at a given time” (Richter, 2013, 276). This issue of visibility creates a barrier for bisexuals because through this definition of identity through relationships, it is only possible for bisexuality to be visible through polyamorous relations or threesomes. Again through analysis of the listed films, Richter found that the ignorance linked with leaving bisexuality unnamed “reinforces the biphobic perspective that bisexuality is a phase on the way to becoming gay” (Richter, 2013, 277-278), contributing to the belief that acceptance of bisexuality will destabilize the gay/straight dichotomy that society has accepted through the expansion of the LGBT+ civil rights movement. Richter posits that “bisexuality is present throughout the text, hiding behind words and phrases that refer to bisexual desire, yet it is present only as an absence, which gives the rest of the text order” (2013, 278). Bisexuality in this context is then defined by the absence of its name, contributing to the significant erasure that is present through the labels used in the ‘lesbian vampire’ film genre.

Ana Carolina de Barros recently published their 2020 article “*Gay Now*”: *Bisexual Erasure in Supernatural Media from 1983 to 2003* analyzes the usage of bisexual characters within the field of supernatural media. De Barros found that statistically, “67% of queer characters on television and 55% of queer characters in movies are gay men or lesbian women, despite bisexual people being estimated as a majority of the LGB (lesbian, gay, bisexual) community in the United States” (De Barros, 2020, 105). Regardless of the fact that bisexual individuals make up the proposed majority, it is still very uncommon to see bisexual people represented on the screen, and if they are, most bisexuals believe that portrayals are negative and inaccurate. De Barros notes that “38.9% of bisexual participants who had been diagnosed with a

mental illness felt that their disorder was somewhat affected by media representation” (De Barros, 2020, 105), contributing significantly to the claim that bisexuality is shaped through media perceptions, and the negative portrayals of identity are allowing negative developments in identity both for members of the sexual minority and for members of society who do not have a full understanding of the orientation.

The Impact of Film Media Perceptions on Bisexual’s Sense of Self

Michaela D. E. Meyer analyzed the show *One Tree Hill* in her 2009 article *‘I’m Just Trying to Find My Way Like Most Kids’: Bisexuality, Adolescence and the drama of One Tree Hill*. Meyer discusses how bisexuality is often defined “*in relation to gay/lesbian identities rather than being defined as a unique sexual identity*” (Meyer, 2009, 240), which then also creates pressure on adolescents who are struggling to come to terms with their bisexuality as a valid sexual identity and feeling as though they need to eventually chose between being gay and straight. Meyer notes that “bisexual individuals are frequently viewed as experimenting, and they are expected to eventually claim one of the dichotomous endpoints of scalar models. Bisexuality continues to be widely stereotyped in media and among lesbian communities as sexually voracious, confused, predatory and emotionally unstable” (Meyer, 2009, 248). The pressure to conform to the gay/straight dichotomy strains bisexual individual’s sense of self, because they are in a constant state of believing they must decide one or the other and blend in with the rest of society. These pressures play a significant role in the development of a healthy sense of self in adolescents and point towards future issues with identity acceptance in the bisexual community.

Adam Key's article *A Girl Worth Fighting For: A Rhetorical Critique of Disney Princess Mulan's Bisexuality* (2015) brings perception of bisexuality into more mainstream media, through Disney and the well-known characters of that universe. Key analyzed the portrayal of Mulan in the popular show *Once Upon a Time* as a bisexual character, marking an important first step towards representation and accurate depictions of bisexuality within the media. Key discusses how "Mulan is presented as an LGBT individual and allowed to pursue a relationship with Aurora. Additionally, that she is bisexual instead of lesbian is significant in that bisexual characters are not typically, if ever, depicted on TV" (Key, 2015, 275). While this depiction on the screen is good for setting an example that bisexuality is a valid orientation, Key questions the choice for Mulan to be that LGBT member. He notes that "the message sent by choosing Mulan is that though some women are romantically attracted to other women, it is only ones who are manly that do so" (Key, 2015, 276). While this depiction of bisexuality marks a milestone for the sexual minority group, it comes with barriers that place bisexuality within a box and compartmentalize bisexual individual's sense of self.

In Jennifer Coletta's 2018 article *The Missing B Word: Compulsory Binarization and Bisexual Representation in Children's Literature*, bisexuality is explored more as a definition. Coletta discusses the appearance of unintentional bisexual erasure due to a lack of naming the orientation outright, especially since "young people do not necessarily fall into the normalized gay/straight binary" (Coletta, 2018). This pressure towards conformity to the binary often creates bisexual representation problems, forcing bisexuals to be defined by their relationships. Coletta notes that "the overreliance on romance, however, complicates sexuality as a facet of identity because it transfers the power outside the subject. It suggests that one's sexuality can only be defined by one's partner, instead of oneself" (Coletta, 2018). This shift of definition allows for

bisexual individuals to feel invalidated in their identity, because the dichotomy pushes them to conform to their relationship and appearance of sexuality rather than staying true to themselves.

Conclusion

This literature review has outlined the state of the research within the field of bisexuality and film media. Through this analysis, it is clear that there has been some significant research done to show the perception of bisexual erasure in film, the ability of media to shape identity, and how film media is able to impact bisexual individual's sense of self. Erasure is very common in our world today, and the research is there to show how ignorance and erasure surrounding bisexuality have allowed for the sexual minority group to develop into a negative stereotype that exists between the dichotomy of gay/straight, only existing to support the dichotomy rather than to validate it's own existence.

The research discussed above discusses the impact of media on bisexuality and how film media has shaped the orientation into what society believes it is today. In the future, it would be beneficial to conduct more studies exploring the implications of media on identity. It would also be helpful to have more research in the field of bisexuality as well. Despite the fact that bisexuality has been around and present since the LGBT Civil Rights movement, there is still so much left unexplored and unanswered in the field. It is important to note, although there are many issues within the field of bisexuality and bisexual representation, there has been a positive change in recent years for bisexual representation, including more widespread inclusion, more acceptance, and more appearances in media of bisexual characters and actions. Further research to support the uniqueness of bisexuality in comparison to other sexual identities would be a good

step forward in the battle to accepting bisexuality and the sexual orientation minority group that identifies within the orientation.

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Title: Where Theoretical Assumptions Meet Best Practices in Support of Online Adult Learners

Topic: Adult Education

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Where Theoretical Assumptions Meet Best Practices in Support of Online Adult Learners

Adult learners represent a significant constituency of online higher education consumers. From theory to practice, universities must recognize adult learners as a viable population. A brief historical overview of education will precede key components of what it means to be an adult learner. Educational research traditionally follows a social science approach to connect theories and frameworks with implications in the field. However, this approach may not always lead to a clear understanding of best practices. The authors will examine Knowles' assumptions of adult learners as a foundation for discussing benefits and challenges associated with teaching and learning in higher education. This will be narrowed by way of applying best practices specific to online adult education based on the authors' expertise as practitioners in the field.

Historical Overview

The first public school in America dates back to 1635 to a grammar school in Boston Massachusetts (Crooks, 2020). The purpose of this school was to educate males bound for college in classical studies. In 1770, the common school was introduced as an initiative under Thomas Jefferson's presidency as an attempt to reinforce American democracy (Mondale et al., 2004). According to the author, common schools existed throughout 1890 as less-than-ideal models of education strapped by discrimination and segregation. The first half of the 20th century saw a meek public education effort in America with only 6% of children graduating in 1900. This number climbed drastically to 51% in 1954 thanks to a growing population and child labour laws (Mondale et al., 2004). In 1983, an educational report was conducted under Ronald Regan's presidency titled, *A Nation at Risk*. This report highlighted the challenges and mediocrity of the American public education system (Mondale et al., 2004). Since this time, a

growing interest has been placed on American education to include K-12 education as well as higher education. Information on adult learning has grown since the establishment of the American Association of Adult Education in 1926 (Knowles et al., 2020). However, it was not until between 1940-50 that there was significant research to suggest adult learning as a theory. While many experts have contributed to this field of study much work is needed to fully understand the adult learner.

Adult Learners

The process of defining adult learners is as important as it is difficult. One widely accepted delimiter, based on a chronological factor, is that the population of adult learners consists of those age 25 and older, a distinction which acknowledges a different set of needs than what might be experienced by traditional undergraduate students (i.e., age 17-24) (Kasworm, 2018). The body of research on phenomena specific to adult learners has been growing since the 1950s (Kern, 2018), and no matter the learning environment, one significant research finding has shown that adult learners desire to be recognized and heard as a categorical population of learners (Hunt et al., 2019). Frustrations abound for adult learners and one common challenge is the level of importance placed on traditional undergraduate students (Kasworm, 2018). The author provided the following as additional pitfalls to even the playing field desired by adult learners: 1) an assumption that adult learners are new to or unfamiliar with advanced learning, 2) an attempt to apply the same policies and procedures as work with traditional undergraduate students, and 3) an expectation that services and access points will work interchangeably for undergraduate and adult learners. The challenges are also felt by another population, adult learner educators.

Adult learner faculty are charged with the task of working with a population that spans multiple generations, each generation influenced by learning preferences borne of a time (Holyoke & Larson, 2009). Kasworm (2018) described the efforts of adult higher education professionals as heavily influenced by a sense of cultural confusion, which supports what Holyoke & Larson (2009) discovered regarding a student base that still includes baby boomers. In the endeavor to provide more clarity for universities as well as researchers in the field, traits or descriptors have been used to label or classify adult learners. Some examples, as a result of such efforts, define adult learners as nontraditional, mature, older, reentry, nonresidential, evening or weekend, adult degree, distance learning, or e-based students (Kasworm, 2018). It is no wonder adult learners fight back against a sense of disconnect.

A different approach to the challenge of meeting adult learners where they are would be to apply a lens that avoids the preemptive step of first defining or limiting the population. Rather than so much attention paid to the inward qualities of an expansive and diverse population of learners, adult education professionals can instead study models and frameworks that lean in the direction of support for a learning experience that can be individualized. Diep et al. (2019) discussed three exemplary frameworks for consideration regarding adult learners: Community of Inquiry, Connectivism, and Networked Learning Theory. Community of Inquiry is a framework that applies three presences, cognitive presence, social presence, and teaching presence to support an online learning community (Fiock, 2020). Connectivism is a network theory that emphasizes the use of digital technology tools to extend the interaction between learners in the online environment (Downes, 2019). With roots in Connectivism, Network Learning Theory proponents focus on the connections between learners and resources as well as the social ties between learners (Ryberg et al., 2012). The general term, andragogy, refers to that which is

associated with adults and learning and can be traced back to the 1800s (Loeng, 2018). Loeng went on to describe Malcolm Knowles as the theorist who contributed most to making the theory of andragogy known.

According to Knowles et al. (2020) the term, adult, can be defined in numerous ways depending on the lens through which you are considering the term. The term, adult, may be viewed via a biological lens as it references when an individual is of reproductive age. The term, adult, may also be examined through a legal lens as in accordance to when a person can take responsibility for adult actions. There is also a social definition for the term, adult, as it relates to those adult behaviors such as matrimony and parenthood. Lastly there is a psychological definition linked to the word, adult, which equates to an individual's self-realization (p. 43).

Assumptions About Adult Learners According to Knowles

Malcolm Knowles, an American educator, was not the first researcher to coin the term, andragogy; however, he was responsible for popularizing the concept in Western culture (Ekoto & Gaikwad, 2015). Andragogy is a term meaning to teach adults; it may also be defined as the art and science of teaching adults (Knowles et al., 2020). The term dates back to 1833 when a German educator by the name of Alexander Kapp first coined this language (Ekoto & Gaikwad, 2015; Oyeleke & Adebisi, 2018). On the contrary, pedagogy, a popular term in public education, means to teach children (Knowles et al., 2020). According to Knowles, adults learn very differently than children and therefore must be educated differently. Knowles suggested that teachers could anticipate adult learners as influenced by the following six characteristics; 1) learner's need to know, 2) learner's self-concept, 3) learner's prior experience, 4) learner's motivation to learn, 5) learner's readiness to learn, and 6) learner's orientation to learning (Chan, 2010; Ferreira & MacLean, 2017).

Need to Know

The first assumption suggested that adult learners approached learning from a “need to know” lens (Knowles et al., 2020). Adult learners wanted to know why there was value in the learning. Adult learners, unlike younger learners, wanted to understand how the learning would benefit their lives from a personal perspective as well as a professional perspective (Ferreira & MacLean, 2017). According to Knowles et al. (2020) adult learners wanted to know the “why, what and how” of the learning prior to beginning the learning (p.5).

Self-Concept

Adult learners are unique in that they typically have a learned self-awareness considered uncommon in younger learners. As a result, adult learners want to connect their self-concept to their learning experiences. Adult teaching and learning, therefore, should be self-directed and autonomous in nature (Knowles et al. 2020). Adult learners want to be in control of their learning.

Prior Experience

Adults have lived experiences that are very different from younger learners. Adults bring their prior learning experiences with them when approaching new learning. Past experiences can serve as rich resources from which adults may scaffold their new learning (Yin & Lim, 2020). In this sense, an adult learner’s frame of reference is much broader and more in-depth than a child’s, thereby deepening the learning outcomes.

Motivation to Learn

Motivation can be internal or external in nature depending on the individual. Knowles et al. (2020) suggested that adult learners were most commonly intrinsically motivated in relation to acquiring new learning. This intrinsic motivation was most often grounded in the form of

personal payoff. Ferreira and MacLean (2017) elaborated on this idea noting that adult learners expected to experience personal enjoyment and value in learning.

Readiness to Learn

According to Ferreira and MacLean (2017), “Readiness to learn is about matching instruction with the developmental stage of the learner” (p. 16). In this spirit, learners must be intellectually prepared for the learning process. Knowles et al. (2020) suggested that adult learners were ready to learn when they saw the practical implications of the learning.

Orientation to Learning

Understanding how information to be learned relates to real situations is vital for adult learners. Authorities on this topic recognized that adult learners expected to see a connection between the learning and real-life situations or events (Knowles et al., 2020). In this context, adult learners were at the center of the learning as problem solvers rather than on the sidelines studying subjects and content (De Vito, 2009). Adult learners should be actively involved in learning rather than passively present.

What Higher Education Institutions Need to Know

In 2011, adult learners made up 43% of college students in the United States of America (Bengo, 2020). According to the National Center for Educational Statistics, students over age 25 made up 71% of online learners in 2017 (NCES, 2017). The University of Texas, El Paso reported that there were over six million students taking online education courses with 68% of those being experienced professionals averaging 32 years of age (UTEP, 2018). Data such as this suggests that educational institutions need to be cognizant of the ways adults learn so that they may maximize this learning potential. Colleges and universities are in the market of attracting students so that they can meet their institutional goals. Satisfied students increase an

organization's ability to successfully do this. Ferreira and MacLean (2017) stressed the importance of understanding adult learners in relation to student retention. They suggested that as many as 80% of online learners fail to complete their online courses. Attrition rates such as this could be catastrophic for institutions.

Benefits

Higher education institutions aware of the importance of adult learning theories will do a better job of meeting the needs of their learners. Institutions that recognize adult learning theories and then design and staff courses according to this philosophy will have more success in the online environment (Cochran & Brown, 2016). This success may lead to increased learner satisfaction and self-efficacy (Moore & Shemberger, 2019).

Challenges

Challenges for higher education institutions in implementing and supporting adult learners include a lack of training and understanding of andragogy by course designers and instructors. A university cannot take a one-size-fits-all approach to teaching and learning. Curriculum designers and instructors must be aware of the unique benefits and challenges associated with adult learning. Andragogy assists instructors in identifying those basic needs of adult learners so that they may then build relationships to discover additional insights. Other challenges associated with teaching adult learners in higher education include challenges associated with access, opportunity, flexibility, and affordability. However, these challenges are not unique to adult learners; rather, they are universal across institutions within the United States of America.

Best Practices for Online Program Success

Post-secondary online learning has grown in popularity over the past decade with an increase in the number of learners as well as an increase in the number of program offerings (Allen & Seaman, 2013; Boettcher & Conrad, 2016; Moore & Shermberger, 2019; Mulvenon & Robinson, 2014; Tainsh, 2016). Online students are often employed females who are older than traditional post-secondary-aged students (Tainsh, 2016). Those practices that have been identified as best practices for teaching online learners are akin to best practices identified for educating adult learners (Chametzky, 2014; Knowles et al. 2020). With this in mind, online best practices will be examined as they relate to Knowles' aforementioned assumptions. For the purpose of synthesis, best practice number one, "course design," will encompass the following assumptions: need to know and self-concept. Best practice number two, "content," will include the following assumptions: orientation to learning and readiness to learn. Finally, best practice number three, "the learning environment," will incorporate the succeeding assumptions: prior experience and motivation to learn. It is important to note that the preceding assumptions are not strictly isolated to one best practice area; rather, they are intertwined.

Best Practice 1: Course Design

As course designers work to create online courses intended for adult learners, they must consider the needs and desires of adult learners in order to improve the overall experience. Identifying clearly defined course learning outcomes, expectations, and syllabi help to prepare the learner in embracing why they need to learn the material at hand (Knowles et al., 2020). Adult students want to have opportunities to make their own decisions about learning; therefore, providing choice and open-ended dialogue opportunities are essential components. As developers craft courses they should shift from teacher-centered to learner-centered approaches toward course design (Cochran & Brown, 2016). This requires surrendering teacher control and

empowering the learner to demonstrate his or her learning. For example, learning can be demonstrated via discussion board participation, case study reflections, and collaborative projects. The design of the course can include both synchronous and asynchronous communication as well as individual and collaborative work experiences (Boettcher & Conrad, 2016). At the foundation of the design, the online course needs to incorporate innovative and effective teaching practices that engage and support adult learners.

Best Practice 2: Content

Selecting appropriate course content is critical when designing and delivering college course material for adult learners. The content should be current, relevant, and relatable. According to Tainsh (2016), the content within adult learner-focused courses should include higher order thinking skills such as critical thinking activities, analysis, and application of relevant problems within the identified field. Adult learners want to apply their learning almost immediately through action research projects or problem-solving initiatives such as case studies (Knowles et al., 2020). As adult learners explore content and acquire new information, they want an opportunity to test their new knowledge through practical application. Service learning, practicum, and field-based experiences are some ways to accomplish this (Dunlap et al., 2016). Course content includes, but is not limited to, the following: videos, readings, multimedia presentations, discussions, lectures, assignments, and assessment rubrics. Careful examination of course content, such as discussion boards and assignment rubrics, allows instructors the opportunity to see where the learner is in relation to the new material. At that point, modifications or adjustments can be made to meet the needs of the individual learner. When studying the online course content there should be opportunities for student choice and self-

reflection (Knowles et al., 2020). These opportunities may be present in group discussions, brainstorming sessions, journaling, and blogging (Dunlap et al., 2016).

Best Practice 3: Learning Environment

Online instructors are responsible for maintaining an environment conducive to learning. Adult learners have a wealth of knowledge to share as a result of lived experiences and should be given opportunities to collaborate and share information. Richardson et al. (2017) wrote that when learners are provided opportunities to collaborate and connect in online classrooms the outcomes are positive. Collaborative tasks should be encouraged in the online adult learning environment (Knowles et al., 2020). As instructors manage the learning environment, they must be aware of the adult learner's need for respect and autonomy while also being encouraged to actively participate and stay engaged. Tainsh (2016) argued that engagement empowers adult learners and motivates them to work independently as well as interactively in creative ways. Adult learners desire frequent, specific feedback which, in turn, motivates them. One way to support this effort is for the instructor to be present in the online community (Boettcher & Conrad, 2016). Fiock (2020) made the statement that, when instructors foster positive online communities, the results are increased student learning, engagement, and motivation. The value of building positive relationships cannot be underscored. Instructors can nurture and support the online learning environment by establishing netiquette rules, making welcome phone calls, limiting class sizes, sending welcome messages, posting weekly announcements, and uploading personal photos.

Conclusions

Online education has grown as a viable resource for adult learners seeking additional knowledge and skills (Ferreira & MacLean, 2017). A dive into the historical underpinnings of

adult education revealed attempts to define and capitalize on this growing population of learners. However, there are pitfalls and challenges associated with limiting or studying adult learners as, one-size-fits-all (Kasworm, 2018). A traditional social science approach to conducting research on this population has failed to produce narrow or even specific results but has been helpful in determining the need for individuation as a key element for consideration (Diep et al., 2019). Knowles et al. (2020) put the term, andragogy, on the adult-learner map and the six assumptions for adult learners have informed best practices for instructors, curriculum writers, and institutions. Higher education institutions are wise to consider the benefits as well as the challenges associated with acknowledging the unique needs and expectations of adult learners, to include an even more narrowed population of online learners. Best practices focused on course design, content, and learning environment must be considered. A goal of landing on one definition and one approach to educating adult learners falls short as will the application of one theory as overarching. Instead, this important population of learners is best served through practices that value each individual and their unique set of experiences and goals.

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Factors That Influence Tenured Faculty Participation in Development and Delivery of Virtual Instruction

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Abstract

Debatably, the COVID-19 pandemic is one of the largest and most devastating in world history. As the nation's hospital rooms become increasingly full with COVID patients, our university classrooms are becoming increasingly vacant. The great Philosopher Hermes once said the measure of the pendulum swing to the right is the measure of its swing to the left. As university classrooms become increasingly vacant policymakers and educators must increase quality virtual learning systems and course offerings to the same degree, if their institutions are to remain relevant. The endemic disease, despite causing tremendous suffering and loss of life continues to wreak global havoc in the workplace and in schools. The World Health Organization declared the disease a public health crisis of international proportions. Employees across the planet are working from home due to lockdowns, isolation, quarantine, social distancing requirements and overall concern for health and safety. Despite causing pervasive economic devastation, it is directly affecting education systems, universities and colleges across the planet. As of May 2021, the United Nations Educational Scientific and Cultural Organization reported that the disease has negatively affected over 290 million students across 22 countries. Other prominent agencies report this figure to be in excess of 1.2 billion. This widespread and

continuing plague has forced educators to rethink traditional or face-to-face modalities of instruction and move toward quality Virtual Education Systems.

Introduction

To examine motivational obstacles and the crucial need for transition to online learning the researchers are proposing a mixed methods study design. The qualitative component entails a phenomenological approach to administrators' lived experiences related to their knowledge of how to motivate tenured faculty members. The quantitative component focuses on ascertaining tenured faculty members' perspectives of factors they believe will actually motivate them to participate in the development and delivery of online instruction in graduate schools. The researchers will select Universities across the Southeastern United States using purposive sampling. The researchers will then conduct a population study by interviewing senior academic administrators or designees and surveying tenured faculty in Educational Leadership Programs using a Likert type scale. The data collection and analysis will enable the researchers to, compare administrator perceptions of factors that motivate tenured faculty to what actually motivates them, and provide data to help policy makers and administrators to develop quality Virtual Education Systems in the graduate schools examined. The research results will contribute to an understanding of how administrators can develop both a systems and systemic approach to the development of Virtual Education Systems in education.

There is little doubt the COVID-19 pandemic is one of the largest and most devastating in recent history. There seems to be a coinciding relationship between the number of hospitalizations caused by the disease and school attendance. As the nation's hospital rooms become increasingly full of COVID patients, our university classrooms are becoming

increasingly vacant, as it relates to in-person attendance. Educators have become increasingly aware of the need to offer virtual learning programs as an alternative to in-person or traditional course offering. Many of these institutions include measures to increase such offerings in the future as indicated in their strategic plans.

Well, the future is upon us! In educational dialogue, virtual learning has frequently been characterized as the “wave of the future;” in reality, it is no longer anticipated or something that will occur, but is at hand. Likewise, it is no longer a choice, but a necessity. In the wake of the COVID pandemic higher education classrooms are becoming increasingly virtual. According to the National Center for Education Statistics (NCES), (2021) the number of higher education students taking at least one virtual learning course has surpassed 6.9 million in the United States alone. Though not labeled as an educational reform, the transition from face-to-face or traditional instructional modalities to virtual learning embodies major elements of reform. For instance, marketisation or enhancing competition and improving instructional efficiency, two of the major aspects or core aims of the Education Reform Act of 1988, are also major aspects of virtual education. The transition, virtual learning, though not labelled as a reform, embodies the characteristics. Typically, educators have the opportunity to plan and develop reform initiatives; due to COVID, virtual learning was sprung upon us. This presents another layer of complexity. Professor Gary Orfield of Harvard indicates three crucial questions must be answered in the affirmative before an educational reform should be attempted. A negative response to any one of the three signals a diminished possibility of success. These questions involve feasibility, practicality, and legitimacy, (Sunderman, 2006). As it relates to the sudden virtual learning transition in higher education, educational leaders and faculty members were left with little choice, but to make a quick leap from face-to-face or traditional instructional modalities to

virtual learning methods. This unexpected requirement afforded little chance for the planning and development that usually accompanies reform initiatives. Moreover, these circumstances have found many faculty members feeling unprepared and perhaps unmotivated to transition to virtual learning. This seems particularly true among tenured faculty members serving at traditional institutions or those that have mainly focused on face-to-face modalities of learning.

Significance of the Study

Despite barriers defined by academic leaders related to hesitant faculty adoption and participation, most higher education senior administrators now cite Virtual Learning Programs as critical for their long-time strategy in terms of relevance (Allen & Seaman, 2018). This study seeks to uncover data to inform administrators of factors needed to motivate senior faculty members to plan, develop, implement and sustain robust Virtual Learning Programs at institutions of higher learning. There is no shortage of research-based data that indicates the propensity of Virtual Learning Programs to positively affect enrollment in institutions of higher education. Virtual learning is becoming increasingly more important and crucial given the current environment of continuing budget cuts and decreasing student enrollments. The researchers designed this study to delve deeper into phenomena related to faculty and administrator perceptions of factors that serve to motivate or undermine tenured faculty members' willingness to develop and participate in VLPs. Again, this is extremely important from many perspectives. The increasing number of state board requirements focusing on performance metrics related to retention and graduation rates is among the most notable. In order to maintain relevance in an environment of what appears to be over-reaching accountability mandates, the nation's colleges and universities must offer students needed the tractability for success.

In this light, another important reason the study is needed centers on access, flexibility, cost, and time to degree, all significant factors that drive students' decisions to enroll or not to enroll in higher education institutions. VLPs are concerned with instructional delivery methods that allow students the flexibility of enrolling in courses anywhere and anytime without disrupting their personal lives or professional schedules. Distance learning also provides the opportunity to complete courses of study, while at the same time, minimizing debt. With millions of students across the nation and the globe taking at least one virtual class, it is essential for institutions of higher education to increase and sustain Virtual Learning Programs. Varied VLP course offerings are also vital for such institutions. This study will examine essential factors for such institutions to remain relevant. More specifically, the results of this research will serve to inform administrators and tenured faculty of factors perceived to motivate or hinder VLP participation, which is tantamount to their institutions either increasing or decreasing VLP offerings, which in turn, will affect enrollment, retention and graduation rates, along with institutional relevance.

Relevant Motivational Factors and Conceptual Model

Numerous studies that address or investigate factors that influence faculty perceptions of online or virtual learning. Some of the most recent findings indicate there is an increased need for institutional effort in motivating faculty to participate in online learning modalities. Hiltz, et.al. (2021) concluded from their qualitative research involving faculty focus groups that faculty members who teach online often feel devalued by the institution and their colleagues. They also complain about the absence of university policies to guide, train and reward faculty online teaching as being problematic and of major concern. These researchers also identified factors that each of the four focus groups perceived as being motivational.

Table 1: Factors Perceived to Motivate by Faculty Focus Group

Group 1	Group 2	Group 3	Group 4
Flexible schedule	Time/location	Self-scheduling:	Flexibility of schedule
Personal interaction	flexibility	anytime/anywhere	(anytime/anywhere)
Learning community	Diverse students	Learn new technology	Opportunity to work
Pedagogical challenge	Faculty creativity	Medium (being online)	intensively with
Reach more students	Better	Better control	students
Challenge of technology	interaction/quality	Reaching non-	Course management
More effectiveness than face-to-	Easier record	traditional students	Meeting students'
face	keeping/course	Mentoring others	needs/desires
	management		Professional
			development

Hiltz, et.al. (2021)

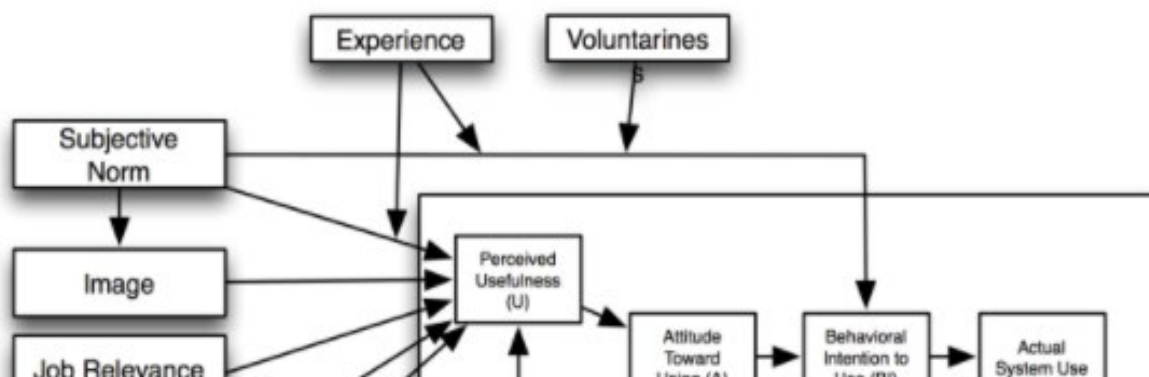
Some of the most prominent motivators across groups were, flexibility, interaction, between faculty and students, reaching non-traditional students, course management, and professional learning. These findings are unique and provide a framework for future research on investigating perceived factors that motivate faculty, from a faculty perspective.

University of Alabama at Birmingham professor, Wingo, Ivankova, and Moss rightly surmised that academic leaders could better promote online academic programs if they understand faculty perceptions concerning online instructional modalities. This need is not going unnoticed, as noted above, more higher education senior administrators now cite Virtual Learning Programs as critical for their long-time strategy in terms of institutional sustainability and relevance (Allen & Seaman, 2018). Though COVID- pandemic has recently resulted in greater transition and urgency related to online learning, Allen & Seaman noted as early as 2015 that institutions of higher education across the country were asking faculty to transition to online teaching. It is also important to consider factors that serve to demotivate or hinder faculty participation in online courses. For example, faculty members, involved in online teaching at the University of Central Florida suggested a feeling that their workload was increased, but not their pay. This can be seen as a demotivating factor (Hartman, et.al, 2000). Some other pervasive

research-based factors that demotivate are perceived by faculty members as lack of visual contact with students, more work for same pay, lack of institutional support, lack of training, diminished student learning, perceived difficulty of use, and usefulness, (Hiltz, et.al., 2021; Wingo, et.al, 2017).

The researchers selected Venkatash & Davis' Technology Acceptance Model 2 (TAM 2) to explore factors that influence faculty perceptions of online teaching. The model provides a broad perspective and faculty experience and voluntariness. It is quite fitting given the current situation brought about by COVID. Many institutions required faculty members to teach online, eliminating voluntariness. This begs the question are faculty members more willing if given an opportunity to volunteer. Also by making the transition to online mandatory, how did the educational leaders affect the motivation and performance of faculty? The TAM is also very applicable because by making online participation mandatory, educational leaders eliminated what Davis refers to as the subjective norm and thereby eliminated major consideration faculty members might typically employ in deciding to teach online, which in turn, affects motivation (See, Figure 1). It is also noteworthy that prominent researchers in the field consider the TAM is a powerful and robust predictive model concerning users' willingness to participate in new technologies in organizations.

Figure 1: Technology Acceptance Model 2 (TAM 2)



(Venkatash and Davis, 2000)

The Research Design

A qualitative case study research design will be used for this research. Creswell (2017) defined qualitative research as an inquiry approach useful for exploring and understanding a central phenomenon. According to Creswell, the research process involves the inquirer asking participants broad, general questions, collecting the participants' detailed views in the form of words or images, and analyzing the information for description and themes. Moreover, Creswell describes qualitative research as an emerging process, which indicates that the intent or purpose and the questions asked by a researcher may change during the process of inquiry-based on feedback or responses of participants.

The researchers designed this multi-case study to examine factors that motivate or hinder tenured faculty participation in online programs at institutions of higher education. Yin (2018) defined case study research as an investigation of an in-depth phenomenon to retain a holistic and real-world perspective such as studying individual life cycles, small group behavior, organizational and managerial processes, neighborhood change, school performance, international relations, and the maturation of industries. Further, the study is designed as a case study because the activities being investigated occur within a group. As noted by Creswell

(2012), a case study is an in-depth exploration of a bounded system such as an activity, event, or process based on extensive data collection. The research design will consist of the utilization of a survey and interview protocol to address the following questions.

Research Questions

The overarching aim of the study is to identify factors perceived by administrators and tenured faculty members that tend to motivate or hinder their participation in VLP course development and delivery. The following research questions were developed to address this objective.

1. What are major intrinsically driven factors perceived by administrators that tend to motivate or demotivate tenured faculty members' willingness to participate or not to participate in VLP course content development and delivery?
2. What are major extrinsically driven factors perceived by administrators that tend to motivate or demotivate tenured faculty members' willingness to participate or not to participate in VLP course content development and delivery?
3. What are major intrinsically driven factors perceived by tenured faculty members that tend to motivate or demotivate tenured their willingness to participate or not to participate in VLP content development and delivery?
4. What are major intrinsically driven factors perceived by tenured faculty members that tend to motivate or demotivate their willingness to participate or not to participate in VLP course content development and delivery?

Conclusion

The researchers discovered through exploring empirical data a faculty generated perspectives that perceived usefulness and perceived ease of use are useful and not only meaningful

categorizations concerning factors that motivate or demotivate faculty participation in online learning, but also provide a basis for a vocabulary that's useful to discuss the subject. Such discussions are not just a good idea, are essential concerning the sustainability of colleges and universities across the country and perhaps the globe.

Furthermore, the data garnered from reviewing pertinent literature and a subsequent research design will provide educational leaders with pertinent data regarding faculty perceptions on factors that tend to motivate or hinder online teaching. This information is essential in determining how to motivate and prepare faculty to participate in the development and delivery of online instruction. Educational leaders or administrators responsible for strategic planning will have faculty input readily available during planning processes. This will also administrators to accurately communicate organizational visions and goals for institutional development of Virtual learning Systems and Programs.

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Upper Elementary Students' Attitudes Toward STEM

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Abstract: One hundred and sixty-seven upper elementary school students from four elementary schools on the Big Island of Hawaii completed the Upper Elementary Students Attitudes Toward STEM Survey. This survey covered students' attitudes toward science, technology, engineering, and mathematics. It also covered students' behaviors related to 21st Century workforce development skills, familiarity with adults in STEM careers, and interests in STEM-related workforce opportunities. Findings revealed that upper elementary students had mostly positive attitudes toward science, technology, engineering, and mathematics. Findings also revealed that students reported mostly positive behaviors related to workforce development skills. Further, students were mostly unfamiliar with or unsure about adults working in STEM fields. Finally, most students wanted to learn more about eight specific STEM-related workforce opportunities. Recommendations included that the survey be conducted annually to observe changes in students' attitudes, behaviors, familiarity with STEM careers over time, and desires to learn more STEM-related workforce skills; that reasons for both students' positive and neutral/negative attitudes toward STEM be examined more closely to inform professional development and teaching practices; and more.

Introduction

STEM education is designed to introduce students to concepts of science, technology, engineering, and mathematics that will eventually lead them to productive careers in STEM-related fields. Educators are encouraged to direct students into STEM disciplines, whenever possible, so that their students grow and leave the school grounds for the workforce, benefiting themselves and society through achievements in their respective fields. But what are the

attitudes of elementary school students toward each of the STEM components—science, technology, engineering, and mathematics? How familiar are elementary school students with STEM-related careers for which they may aspire and prepare? How interested are students in the workforce skills that will help them in their future STEM careers?

Many studies have been conducted that examine elementary students' attitudes toward STEM with a focus upon a specific STEM area, such as science (Neathery, 1997; MuSlu & Macaroglu-Akgul, 2006), technology (Gomleksiz, 2012; Akpınar, Yıldız, Tatar, & Ergin, 2018), engineering (Cunningham & Lachapelle, 2010; Rogers & Portsmore, 2004), and mathematics (Swetman, 1995; Köğce, Yıldız, Aydın, & Altındağ, 2009). This study was designed to examine all four STEM areas, as well as examine other related aspects of STEM education.

Purpose of the Study

The purpose of this study was to determine upper elementary school students' attitudes toward STEM (science, technology, engineering, and mathematics), as well as their behaviors related to STEM workforce skills, familiarity with adults in STEM careers, and experiences and interests in STEM-related workforce opportunities. The findings of the study were then used to help inform STEM professional development for upper elementary school teachers.

Research Questions

There were six research question developed for this study. They were:

1. What are upper elementary school students' attitudes toward science?
2. What are upper elementary school students' attitudes toward engineering and technology?
3. What are upper elementary school students' attitudes toward mathematics?
4. What are upper elementary school students' behaviors related to 21st Century workforce development skills?
5. How familiar are upper elementary students with STEM careers?
6. What are upper elementary students' interested in STEM workforce opportunities?

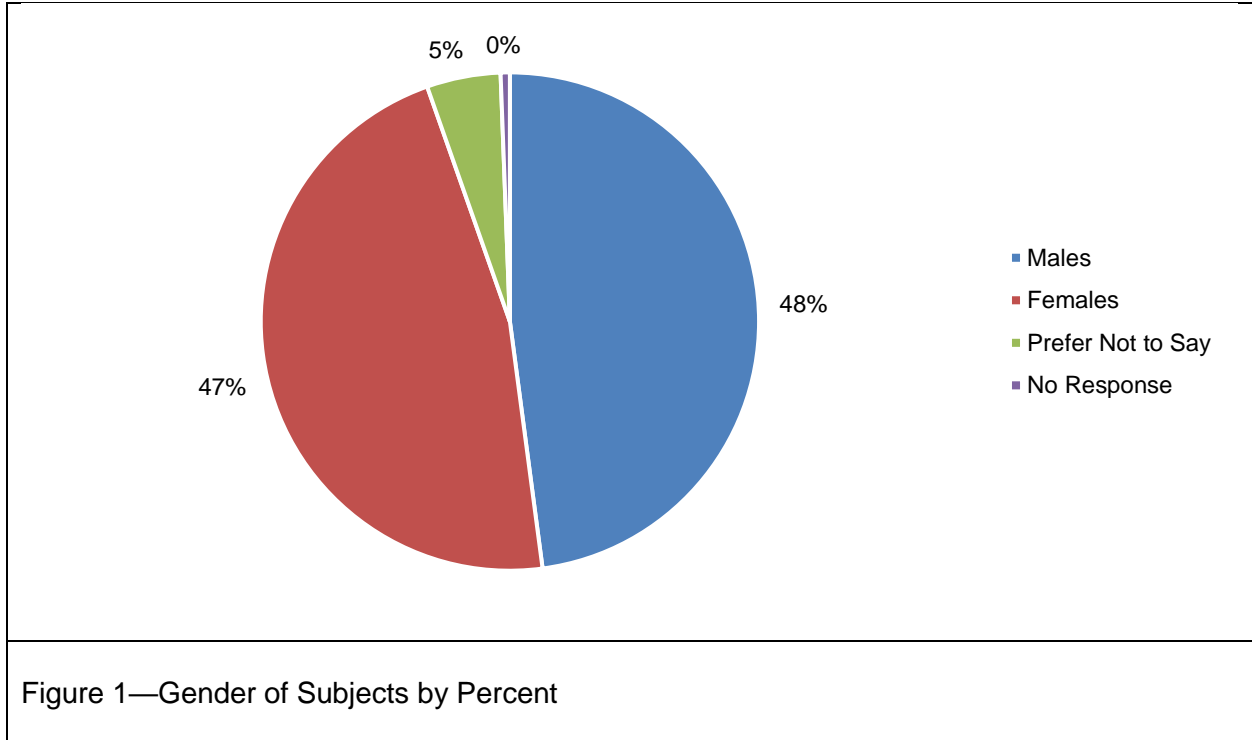
Subjects

Subjects for this study were 167 fourth-, fifth-, and sixth-grade students from four elementary schools on the Big Island of Hawai'i. The four schools were:

1. Kaumana Elementary,
2. E.B. de Silva Elementary,
3. Ha'aheo Elementary, and
4. Chiefess Kapi'olani Elementary.

All four were classified as Title I schools.

Eighty of the students (48 percent) were male. Seventy-eight of the students (47 percent) were female. Eight students (5 percent) preferred not to say. One student did not respond. See Figure 1—Gender of Subjects by Percent below.



Instrumentation

One instrument was developed and implemented during this study. The instrument was the Upper Elementary Students Attitudes Toward STEM Survey. The survey was adapted with permission from the [William and Ida Friday Institute for Educational Innovation](#) within the College of Education at North Carolina State University.

The Upper Elementary Students' Attitudes Toward STEM survey was composed of seven parts as follows:

1. Part One—Demographic Information (three items)
2. Part Two—Students' Attitudes Toward Science (six items)
3. Part Three—Students' Attitudes Toward Engineering and Technology (seven items)
4. Part Four—Students' Attitudes Toward Mathematics (five items)
5. Part Five—Students' Behaviors Related to 21st Century Workforce Skills (seven items)
6. Part Six—Students' Familiarity with STEM Careers (four items)
7. Part Seven—Students' Interests in STEM Careers (eight items)

Part One of the survey collected demographic information. The three demographic questions were:

1. What is your gender?
2. What is your grade level?
3. What is the name of your school?

Part Two of the survey collected information related to students' attitudes toward science using a five-point Likert-type scale as follows:

1. Strongly agree
2. Agree
3. Neither Agree Nor Disagree
4. Disagree
5. Strongly Disagree

The science statements provided for elementary school students in Part Two included the following:

1. After I finish high school, I will use science often.
2. When I am older, knowing science will help me earn money.
3. I will need science for my future work.
4. I know I can do well in science.
5. Science is hard for me.
6. In the future, I could do harder science work.

Part Three of the survey collected information related to students' attitude toward engineering and technology, using the same five-point Likert-type scale as Part Two. The engineering and technology statements provided for elementary school students in Part Three included the following:

1. I am good at building and fixing things.
2. I am interested in what makes machines work.
3. Designing products or structures will be important for my future work.
4. I am curious about how electronics work.
5. I want to be creative in my future job.
6. Knowing how to use math and science together will allow me to invent useful things.
7. I believe I can be successful as an engineer.

Part Four of the survey collected information related to students' attitudes toward mathematics, using the same five-point Likert scale as Part Two and Part Three. The mathematics statements provided for elementary school students in Part Four included the following:

1. When I'm older, I might choose a job that uses math.

2. Math is hard for me.
3. In the future, I could do harder math problems.
4. I am good at math.
5. I expect to use math when I get out of school.

Part Five of the survey collected information related to 21st Century Workforce Development Skills, using the same five-point Likert scale as Part Two, Part Three, and Part Four. The workforce development statements provided for elementary school students in Part Five included the following:

1. I like to help others to do their best.
2. In school and at home, I can do quality work.
3. I can work well with other students, even if they are different from me.
4. When things do not go how I want, I can change my actions for the better.
5. I can make my own goals for learning.
6. I can use time wisely when working on my own.
7. When I have a lot of homework, I can choose what needs to be done first.

Part Six of the survey collected information related to students' familiarity with STEM careers through adults working in specific STEM fields. Student responses were limited to Yes, No, and Not Sure. The four questions asked of students follow:

1. Do you know any adults who work as scientists?
2. Do you know any adults who work as engineers?
3. Do you know any adults who work as mathematicians?
4. Do you know any adults who work as technologists?

Part Seven of the survey collected information related to students' experience and interest in the STEM workforce opportunities. This portion of the survey provided the following two-part prompt:

1. Which of the following have you had the opportunity to do?
2. What would you like to learn how to do?

The responses from which the student could select included the following:

1. Yes, and I want to learn more.
2. Yes, but not interested in learning more.
3. No, have not done and want to learn more
4. No, have not done and not interested

Students made their selections based upon the following workforce opportunities.

1. Coding Scratch or block coding Sphero.
2. Robotics: VEX, Sphero, First Lego

3. Citizen Science Project: use simple tools to gather data in the community
4. Agriculture/Geology: working in the field, drones
5. Astronomy: using simple telescopes or optics (lenses)
6. Manufacturing/Design: Laser cutting equipment
7. Manufacturing/Design: 3-D printing
8. Manufacturing/Design: Vinyl laser cutting & product printing

Administration of the Survey

The Upper Elementary Students’ Attitudes Toward STEM Survey was created in a Google form. It was distributed to elementary school students at four elementary schools in the Hilo Complex area on the Big Island of Hawai’i.

Permission

Permission to survey the elementary school students was granted by the complex area superintendent.

Findings

Findings for Part Two through Part Seven of the Upper Elementary Students’ Attitudes Toward STEM Survey are provided below.

Part Two—Students’ Attitudes Toward Science

For this section of the survey, students were asked to read a statement related to science and respond to one of five options—strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree. Table 1—Students’ Attitudes Toward Science Responses and Figure 2—Students’ Attitudes Toward Science by Number with Percent are shown below.

Table 1—Students’ Attitudes Toward Science Responses					
	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
After I finish high school, I will use science often.	22	56	72	13	4
When I am older, knowing science will help me earn money.	44	61	39	19	4
I will need science for my future work.	41	47	56	19	4
I know I can do well in science.	39	82	34	10	2
Science is hard for me.	12	29	51	50	25
In the future, I could do harder science work.	32	70	37	17	11

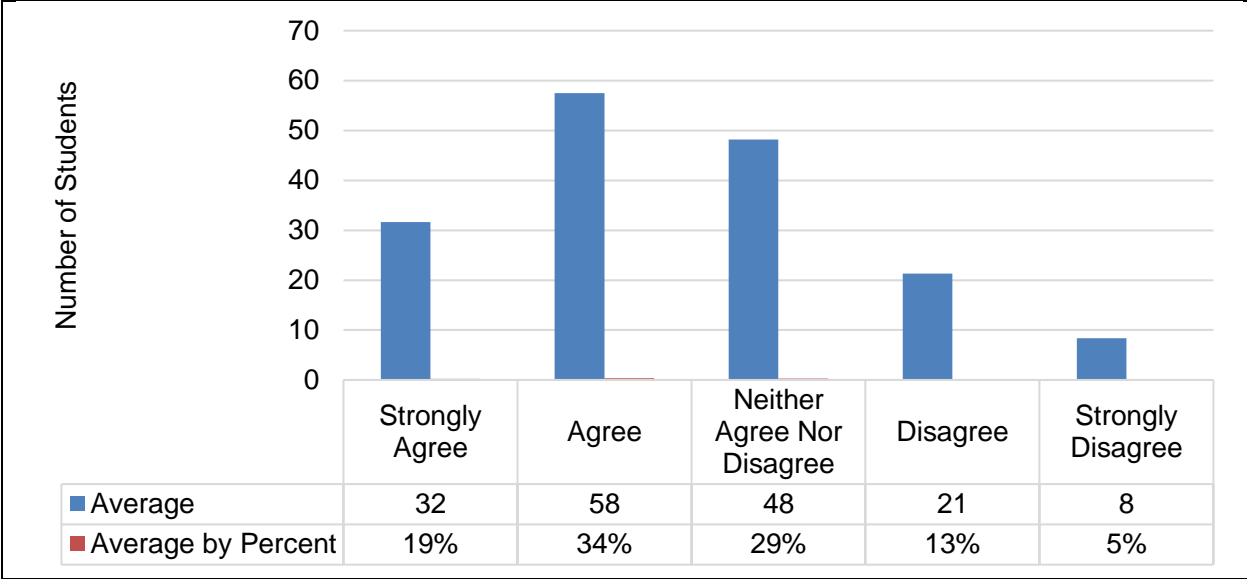


Figure 2—Student Attitudes Toward Science by Number with Percent

Findings revealed that over half of the students agreed or strongly agreed with the statements related to science. Nearly one-third of the students neither agreed nor disagreed, and less and one-fifth of the students disagreed or strongly disagreed with the statements.

Part Three—Students’ Attitudes Toward Engineering and Technology

For this section of the survey, students were asked to read a statement related to engineering and technology and respond to one of five options—strongly agree, agree, neither agree not disagree, disagree, or strongly disagree. Table 2—Students’ Attitudes Toward Engineering and Technology Responses and Figure 3—Students’ Attitudes Toward Engineering and Technology by Number with Percent are shown below.

Number	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
I am good at building and fixing things.	37	53	48	21	8
I am interested in what makes machines work.	40	61	36	28	2
Designing products or structures will be important for my future work.	35	53	43	32	4
I am curious about how electronics work.	49	59	33	19	7
I want to be creative in my future job.	77	63	20	2	5

Knowing how to use math and science together will allow me to invent useful things.	61	67	31	1	7
I believe I can be successful as an engineer.	30	47	59	15	16

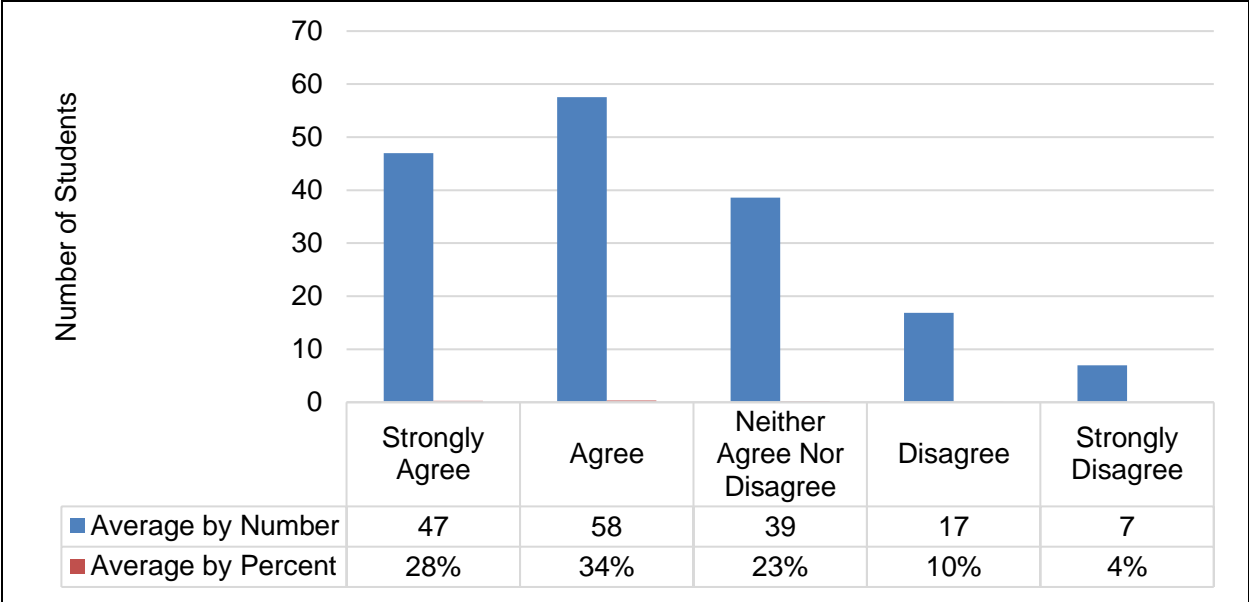


Figure 3—Students’ Attitudes Toward Engineering and Technology by Number with Percent

Findings revealed that nearly two-thirds of the students agreed or strongly agreed with the statements related to engineering and technology. Nearly one-fourth of the students neither agreed nor disagreed, and about one-sixth disagreed or strongly disagreed with the statements.

Part Four—Students’ Attitudes Toward Mathematics

For this section of the survey, students were asked to read a statement related to mathematics and respond to one of five options—strongly agree, agree, neither agree not disagree, disagree, or strongly disagree. Table 3—Students’ Attitudes Toward Mathematics Responses and Figure 4—Students’ Attitudes Toward Mathematics by Number with Percent are shown below.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree	No Response
When I’m older, I might choose a job that uses math.	37	68	44	10	6	2
Math is hard for me.	9	15	42	50	49	2

In the future, I could do harder math problems.	52	67	27	8	10	3
I am good at math.	48	73	26	8	6	6
I expect to use math when I get out of school.	70	60	23	7	4	3

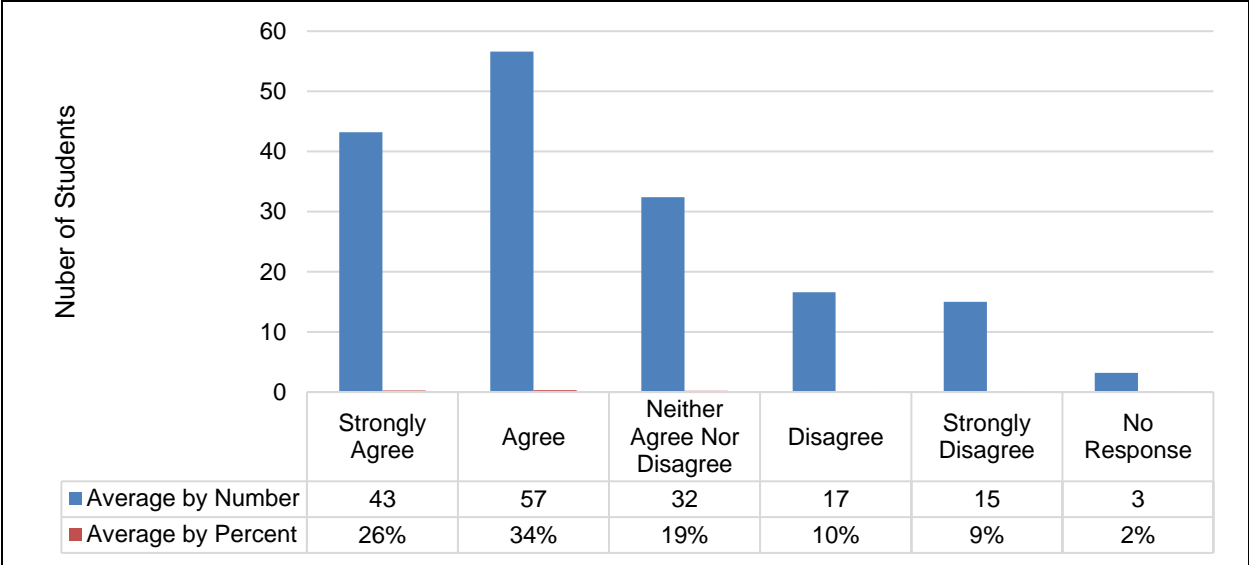


Figure 4—Students’ Attitudes Toward Mathematics by Number with Percent

Findings revealed that over half of the students agreed or strongly agreed with the statements related to mathematics. About one-fifth of the students neither agreed nor disagreed, and just over one-tenth of the students disagreed or strongly disagreed with the statements.

Part Five—Students’ Behaviors Related to 21st Century Workforce Development Skills

For this section of the survey, students were asked to read a statement related to 21st Century Workforce Development Skills and respond to one of five options—strongly agree, agree, neither agree not disagree, disagree, or strongly disagree. Table 4—Students’ Behaviors Related to 21st Century Workforce Development Skills Responses and Figure 5—Students’ Behaviors Related to 21st Century Workforce Development Skills by Number with Percent are shown below.

Table 4—Student Behaviors Related to 21st Century Workforce Development Skills Responses

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
I like to help others do their best.	56	78	29	2	2
In school and at home, I can do quality work.	55	73	30	8	1
I can work well with other students, even if they are different from me.	45	76	36	7	3
When things do not go how I want, I can change my actions for the better.	46	77	36	6	2
I can make my own goals for learning.	53	75	32	3	4
I can use time wisely when work on my own.	53	74	33	4	3
When I have a lot of homework, I can choose what needs to be done first.	64	79	21	1	2

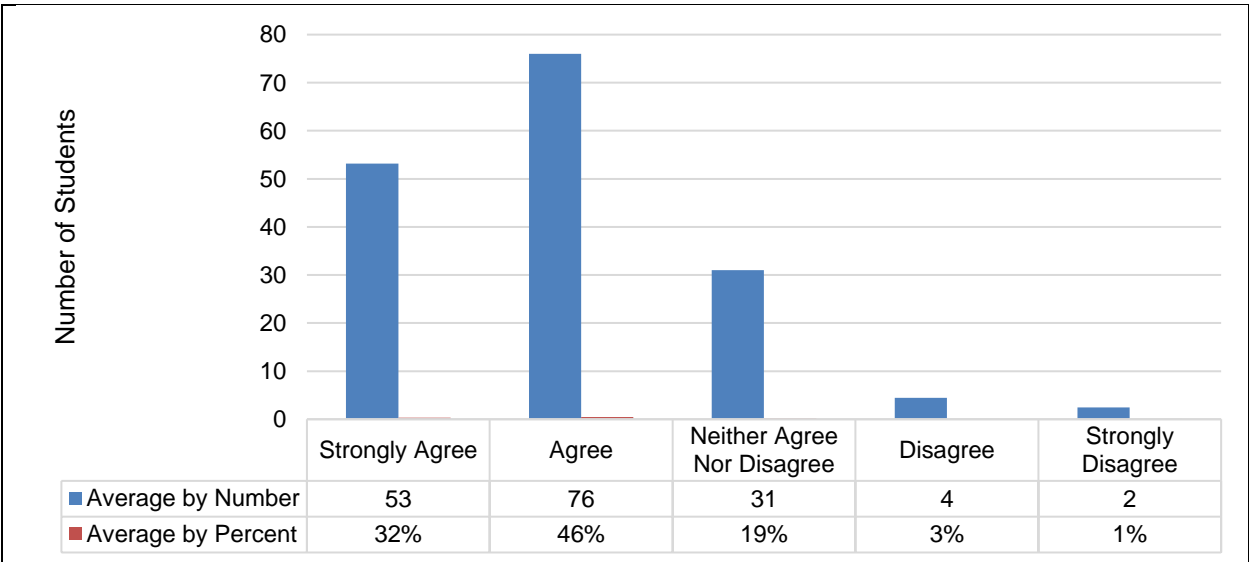


Figure 5—Students’ Behaviors Related to 21st Century Workforce Development Skills by Number with Percent

Findings revealed that over three-fourths of the students agreed or strongly agreed with the statements related to 21st century workforce development skills. About one-fifth of the students neither agreed nor disagreed, and less than one-twentieth of the students disagreed or strongly disagreed with the statements.

Part Six Students' Familiarity with STEM Careers

For this section of the survey, students were asked to answer four questions related adults working in STEM field. Response options were YES, No, or Not Sure. Table 5—Students' Familiarity with STEM Careers Responses is shown below.

	Yes	No	Not Sure
Do you know any adults who work as scientists?	45	69	53
Do you know any adults who work as engineers?	96	37	34
Do you know any adults who work as mathematicians?	55	55	56
Do you know any adults who work as technologists?	75	46	46

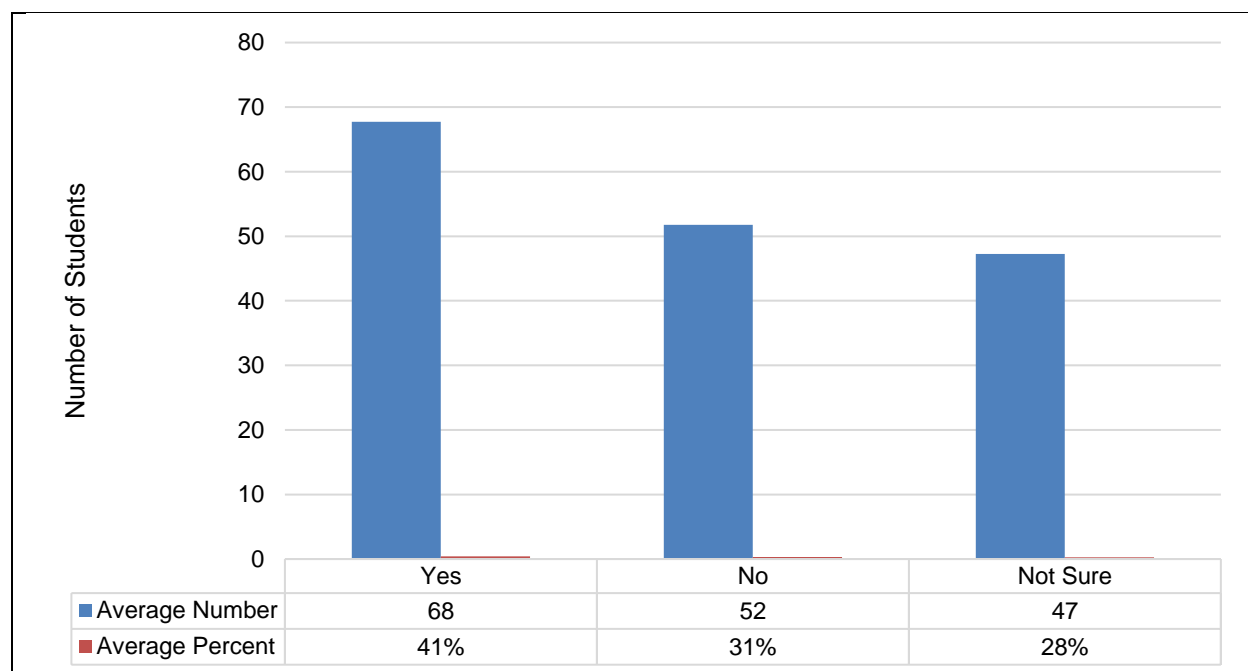


Figure 6—Students' Familiarity with STEM Careers by Number with Percent

Findings revealed that, on average, about two-fifths of the students were familiar with adults working in STEM careers. Nearly one-third of the students were not familiar with adults working in STEM careers, and over one-fourth of the students were not sure.

Part Seven Students' Experiences and Interests in STEM-Related Workforce Opportunities

For this section of the survey, students were asked to respond to eight different workforce opportunities in STEM-related fields. Response options were Yes, I want to learn more; Yes,

but not interested in learning more; No, have not done and want to learn more; and No, have not done and not interested. Table 6—Students’ Experiences and Interests in STEM-Related Workforce Opportunities Responses is shown below.

Table 6—Students’ Experiences and Interests in STEM-Related Workforce Opportunities Responses					
	Yes, I want to learn more.	Yes, but not interested in learning more.	No, have not done and want to learn more.	No, have not done and not interested.	No Response
Coding Scratch or block coding Sphero	57	37	35	38	0
Robotics: VEX, Sphero, First Lego	55	35	43	33	1
Citizen Science Project: Use simple tools to gather data in the community	48	32	54	30	3
Agriculture/Geology: Working in the field, drones	56	24	60	25	2
Astronomy: Using simple telescopes or optics (lenses)	48	30	47	40	2
Manufacturing Design: Laser cutting equipment	56	25	58	24	4
Manufacturing: 3-D printing	60	25	64	16	2
Manufacturing: Vinyl laser cutting and product printing	56	26	61	21	3

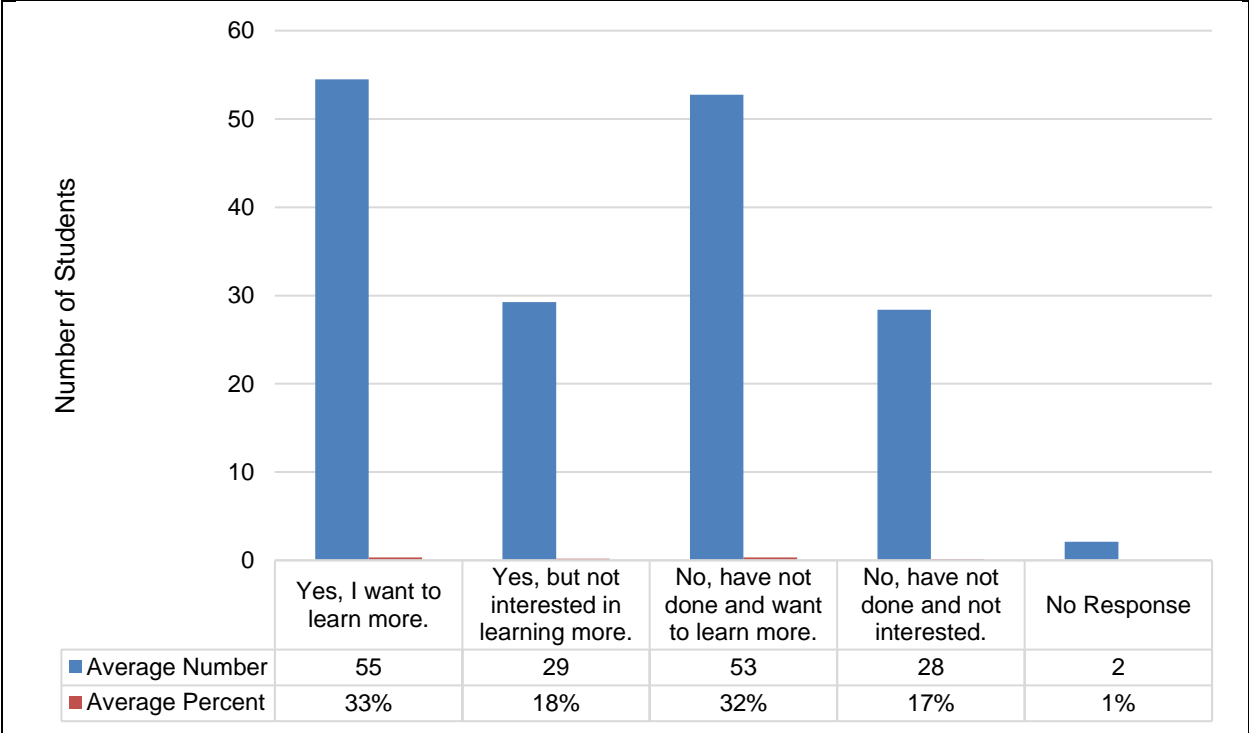


Figure 7—Students’ Experiences and Interests in STEM-Related Workforce Opportunities by Number with Percent

Findings revealed that, on average, one-third of students had experience with the eight workforce opportunities and wanted to learn more. Nearly one-fifth of the students had experience with the eight workforce opportunities but did not want to learn more. Nearly one-third of the students did not have experience with the eight workforce opportunities but did want to learn more. About one-sixth of the students did not have experience with the eight workforce opportunities and did not want to learn more.

Conclusions and Recommendations

The following conclusions were drawn and recommendations were made for each of the six research questions and their findings addressed in this study.

Students’ Attitudes Toward Science

The first research question posed for this study was the following: What are upper elementary school students’ attitudes toward science? The survey findings revealed that over half of the students (53 percent) had positive attitudes related to science. The survey findings also revealed that nearly half of the students (47 percent) had neutral or negative attitudes toward science. Therefore, it was concluded that nearly half of upper elementary students have positive attitudes toward science and nearly half of upper elementary students have neutral or negative attitudes toward science. The researchers recommend that the reasons for both positive and

neutral/negative attitudes toward science be explored further, so that the reasons can inform professional development and instructional practices for upper elementary school teachers in the future. The researchers also recommend that this survey be replicated annually to examine any changes in students' attitudes toward science over time.

Students' Attitudes Toward Engineering and Technology

The second research question posed for the study was the following: What are upper elementary school students' attitudes toward engineering and technology? The survey findings revealed that nearly two-thirds of the students (62 percent) had positive attitudes related to engineering and technology. The survey findings also revealed that nearly one-third of students (37 percent) had neutral or negative attitudes toward engineering and science. Therefore, it was concluded that nearly two-thirds of upper elementary students have positive attitudes toward engineering and technology and nearly one-third of upper elementary students have neutral or negative attitudes toward engineering and technology. The researchers recommend that the reasons for both positive and neutral/negative attitudes toward engineering and technology be explored further, so that the reasons can inform professional development and instructional practices for upper elementary school teachers in the future. The researchers also recommend that this survey be replicated annually to examine any changes in students' attitudes toward engineering and technology over time.

Students' Attitudes Toward Mathematics

The third research question posed for the study was the following: What are upper elementary school students' attitudes toward mathematics? The survey findings revealed that over one-half of students (60 percent) had positive attitudes related to mathematics. The survey findings also revealed that nearly one-half of students (48 percent) had neutral or negative attitudes toward mathematics. Therefore, it was concluded that over one-half of upper elementary students had positive attitudes toward mathematics and nearly one-half of upper elementary students had neutral or negative attitudes toward mathematics. The researchers recommend that the reasons for both positive and negative attitudes toward mathematics be explored further, so that the reasons can inform professional development and instructional practices for upper elementary school teachers in the future. The researchers also recommend that this survey be replicated annually to examine any changes in students' attitudes toward mathematics over time.

Students' Behaviors Related to 21st Century Workforce Development Skills

The fourth research question posed for this study was the following: What are upper elementary school students' behaviors related to 21st century workforce development skills? The survey findings revealed that over three-fourths of the students (78 percent) reported positive behaviors related to workforce development skills. The findings also revealed that nearly one-fourth of the students (23 percent) reported neutral or negative behaviors related to workforce development skills. Therefore, it was concluded that over three-fourths of the upper elementary students had positive behaviors related to workforce development skills and almost one-fourth of students had neutral or negative behaviors related to workforce development skills. The

researchers recommend that the reasons for both positive and neutral/negative behaviors related to workforce skills be explored further, so that the reasons can inform professional development and instructional practices for upper elementary school teachers in the future. The researchers also recommend that this survey be replicated annually to examine any changes in students' behaviors related to workforce development skills over time.

Students' Familiarity with STEM Careers

The fifth research question posed for this study was the following: How familiar are upper elementary students with STEM careers? The survey findings revealed that an average of 41 percent of students were familiar with adults working as scientists, engineers, mathematicians, or technologists. Findings also revealed that 31 percent of students were not familiar with such adults and 28 percent were unsure. Therefore, it was concluded that most students are either not familiar with or unsure about adults working as scientists, engineers, mathematicians, or technologists. The researchers recommend that upper elementary students be exposed to adults with STEM careers to increase their familiarity with them. The researchers also recommend that a repository of adults with STEM careers who are willing to visit and/or work with students be created and made available to upper elementary teachers, so they might invite the adults into their classrooms. Finally, the researchers also recommend that this survey be replicated annually to examine any changes in students' familiarity with STEM careers over time.

Students' Experiences and Interests in STEM Workforce Opportunities

The sixth research question posed for this study was the following: What are upper elementary students' experiences and interests in STEM workforce opportunities? Findings revealed nearly half of the students were familiar with the STEM-related workforce opportunities presented to them and nearly two-thirds of the half wanted to learn more. Findings also revealed that nearly half of the students were not familiar with the STEM-related workforce opportunities presented to them and nearly two-thirds of the half wanted to learn more. Therefore, it was concluded that upper elementary students were nearly evenly split on experience and interest in experiencing more STEM-related workforce opportunities. The researchers recommend that upper elementary students be exposed to an increasing number of STEM-related workforce opportunities. The researchers recommend that the reasons for both positive and neutral/negative student interest in learning related to workforce opportunities be explored further, so that the reasons can inform professional development and instructional practices for upper elementary school teachers in the future. The researchers also recommend that this survey be replicated annually to examine any changes in students' interest and experience related to workforce development opportunities over time.

Summary

This study examined upper 167 fourth-, fifth, and sixth-grade elementary school students' attitudes toward all four STEM fields—science, technology, engineering, and mathematics. It also examined students' behaviors related to 21st century workforce development skills,

students' familiarity with adults in STEM careers, and students' experiences and interests in STEM workforce opportunities. Findings revealed that upper elementary students had mostly positive attitudes toward science, technology, engineering, and mathematics. Findings also revealed that students reported mostly positive behaviors related to workforce development skills. Further, students were mostly unfamiliar with or unsure about adults working in STEM fields. Finally, most students wanted to learn more about eight specific STEM-related workforce opportunities. Recommendations included that the survey be conducted annually to observe changes in students' attitudes, behaviors, familiarity with STEM careers over time, and desires to learn more STEM-related workforce skills; that reasons for both students' positive and neutral/negative attitudes toward STEM be examined more closely to inform professional development and teaching practices; and more.

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The Impact of Education Inequality on Democratic Consolidation in Post-Soviet Republics

Hawaii International Conference on Education

Conference Proceedings

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Abstract

The relationship between education attainment and democracy has long been researched by different scholars. While some studies did not show any significant relationship between these two concepts, others confirmed that distribution of education matters for achieving and sustaining democracy. Very little research has been done in Eastern countries, that comprise the post-soviet republics. This research used Castelló-Climent's (2008) model to estimate the variation of the relationship of education inequality and democracy in post-soviet republics over the period of 1995-2010. Ordinary Least Square regression analysis has been performed on data that includes 18 countries (10 post-soviet republics and 8 soviet eastern bloc satellite countries). The results show that compared to Russia, all the countries achieved a better democratic score, with eastern European countries leading the line. Another major finding is that the decrease of education inequality leads to a more consolidated democracy in the post-soviet countries.

Keywords: education, inequality, democracy, Soviet Union, ordinary least squares, regression

Introduction

The collapse of Soviet Union in 1991 formed fifteen independent republics. Former post-soviet countries are Armenia, Azerbaijan, Georgia, Moldova, Estonia, Latvia, Lithuania, Tajikistan, Kyrgyzstan, Kazakhstan, Belarus, Uzbekistan, Turkmenistan, Ukraine, Russia. While this was new start for independence and prosperity, it also brought some big challenges for the newly formed republics. Not only did the governments need comprehensive institutional reforms, but they also needed to create the right conditions to achieve and maintain political and economic stability. Each of these fifteen countries chose their own political path, with most of them adopting the politics of democratization of their institutions.

Being united under the same ideological and institutional system, post-soviet states inherited the educational, economic, and political traditions of the Former Soviet Union. Thus, it is interesting to view how each of the newly formed independent republics pursued their path to economic growth and democratization. This research focuses on the shared educational history of post-soviet countries and the educational policy changes in each country over the post-soviet period.

The research question that guides this analysis is whether education inequality has had an impact on democratic consolidation in post-soviet republics. This analysis tests if the equitable educational distribution leads to more democracy in the countries with political and educational influence of the Soviet Union, measured by the political participation rights of people and civil liberties. I argue that those post-soviet countries that invested more in the human capital development through education will have less education inequality and, therefore, have more democratic consolidation.

The model that is used to test the relationship between democracy and educational attainment is developed by Castelló-Climent (2008) which is explained in more-detail in the Methods and Model section. The findings of this analysis show that almost all post-soviet and soviet eastern bloc satellite countries improved their democracy scores, compared to Russia with Eastern European countries leading the line. Another major finding from this research is that the decrease in education inequality in the studied countries leads to a more consolidated democracy.

Part I: Literature review - Why Democracy needs Education?

Many scholars have contributed to the research trying to understand the impact of democratization on growth. On one hand, there is a debate whether democracy has a positive or

negative effect on economic growth. Barro's (1998) empirical research finds a nonlinear effect of democracy on growth, stating that "growth is initially increasing in an index of electoral rights, but the relation turns negative once a moderate number of rights has been attained" (cited in Barro, 1999, p. 158). On the other hand, scholars argue that democracy will not lead to direct economic outcomes, but it will increase the development of human capital due to the policies that people will vote for their own benefit (Lake & Baum, 2001).

Researchers talk about the increased investments in education when countries transition to democracies. Lake & Baum (2001) argue that in democracies we will notice more investment into education because people will vote for educational policies that are directed to the development of human capital. In the meantime, research (Glaeser, Ponzetto, & Shleifer, 2007; Castelló-Climent, 2008) shows that equitable access to education gives access to upward social mobility and civic engagement, which leads countries to democracy. Thus, we can notice that not only democracy creates increased access to education, but more access to education will also help to maintain and consolidate democracies.

Despite the large literature focusing on the study of growth and political regimes, only few scholars tried to look at what are the prerequisites for achieving and sustaining democracies. This can be very important for countries that want to transition to democracy. Barro (1999) focused his research on the theoretical framework of Lipset (1959) who argues that there are two key elements for achieving and sustaining democracies: more access to education and enlarged middle class. Barro's cross-country research found that while education at higher levels does not explain democracy, the distribution of education within a country may be a determinant for democracy. Moreover, Castelló-Climent's (2008) research showed that the model developed by Barro on the relationship between higher education attainment and democracy did not hold when

they controlled for unobservable heterogeneity. Instead, they showed that the relationship will hold if they measure the spread of education among different income groups instead of the attainment of education.

The effect of education over democracy may not be direct, but previous research explains how education can become a determinant for democracy. Glaeser, Ponzetto, & Shleifer (2007) note that increased access to higher education gives access to upward social mobility and civil and political participation. Thus, the type of educational policies countries in transition choose to adopt may have direct impact on their success in achieving and sustaining democracy.

Some of the analyses in the existing literature (Barro, 1999; Castelló-Climent's, 2008) show that the effect of education on democracy is especially significant in developing countries. While previous research did focus on showing the relationship between education and democracy, they did not explain the country specific effects. Yet, the democratic consolidation of post-soviet countries may significantly differ from other developing countries, considering the regional characteristics and shared history. There have been no studies done previously to observe the effect of education on democracy considering regional specifications of these countries. My research tries to cover this gap. More specifically, I examine how these variables relate to each other in post-soviet countries, and how the education distribution impacted each country's democratic consolidation over time since the collapse of the Soviet Union.

Part II: Method and Data

This research studies the relationship of Democracy (dependent variable) and Education Inequality (independent variable) in post-Soviet countries, where the unit of analysis is on country-level over time. To do this, an explanatory research approach will be used. A

The Impact of Education Inequality on Democratic Consolidation in Post-Soviet Republics: A regression analysis quantitative analysis of the dependent and independent variables over time and across section will be considered for this research. Thus, a statistical analysis will be required to show whether education inequality has had an impact in the democratization processes in the post-soviet republics after the collapse of the Soviet Union.

The baseline model for this analysis has been used by Castelló-Climent (2008, p. 181):

$$\begin{aligned} Democracy_{i,t} = & \beta Democracy_{i,t-\tau} \\ & + \gamma Education_{i,t-\tau} + \alpha_i + \xi_t + \varepsilon_{i,t} \quad (1) \end{aligned}$$

where i is the country, t is the period and τ is the time lag, and α is the country specific dummy.

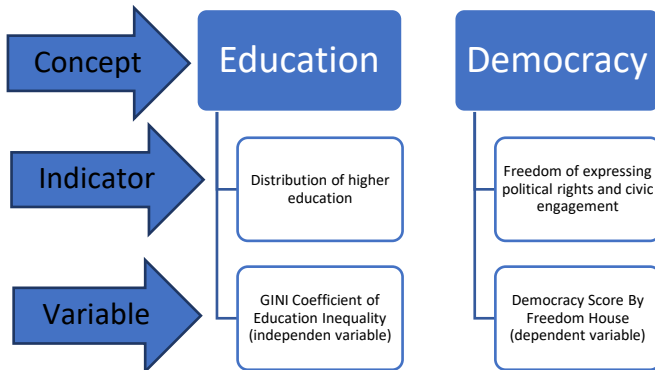
As explained by Castelló-Climent (2008), the model represents the following:

“The variable Democracy lagged τ periods enters the set of explanatory variables to capture the characteristic of persistency in democracies. The coefficient of interest is γ , which reflects whether Education has any effect on democracies. The measure of education will include the level of education as well as its distribution. We also control for time, ξ_t , and country-specific effects, α_i . Therefore, the advantage of estimating a panel model is that we can control for unobservable variables that are country specific and whose omission – e.g. in a pure cross-sectional regression – may bias the estimated coefficients”.

This is in interactive regression model, where the measure of democracy in current year depends on the democracy of previous observed time period, the distribution of education and country specific effects. I use this model to look at the persistence of democracies in post-soviet republics, assuming that there was no democracy while part of the Soviet Union. Below, I describe each selected variable one by one. Figure 1: Conceptualization of Dependent and

Independent Variables below shows the conceptual definitions of the main dependent and independent variables of my interest.

Figure 1: Conceptualization of Dependent and Independent Variables



Dependent variable: The measure for democracy is taken from the Freedom House (Index of political rights or civic engagement index over time for each country), reported yearly for each country. As Freedom House explains, their mission is “to defend human rights and promote democratic change, with a focus on political rights and civil liberties” (Freedom House, n.d.). The measure of political rights and civil liberties has been used previously by multiple researchers, such as Barro (1999), Castelló-Climent (2008), Bollen (1990, cited in Barro, 1999).

Independent Variables

a) GINI coefficient of education inequality: Considering that the income distribution and educational distribution matter for democracy, as described in the literature review section, it is relevant to consider the GINI education inequality coefficient as a measure for distribution of education. Gini coefficient of education or the education inequality index was developed by Thomas, Wang & Fan (2001). In their analysis, they estimated Gini Coefficients for 85 Countries between 1960 and 1990. Later, Thomas Ziesemer (2016) used Barro and Lee’s (1999) dataset to

estimate Gini Coefficient of education for 145 countries from 1950 to 2010 with five-year intervals. An education Gini index is an indicator of the distribution of human capital and welfare, and it facilitates comparison of education inequality across countries and over time. Among the indicators used to measure inequality in education over time, the distribution of education and the income distribution play an essential role. This indicator is used in calculating the effect of education inequality, keeping other measures constant. GINI coefficient index stretches from 0 to 1, with 0 representing perfect equality in education and 1 indicating perfect inequality.

b) Measure of democracy lagged 5 years: The model of democracy developed by Castelló-Climent (2008) includes a lagged variable which means that democracy score of previous time observation ($t-1$, where t is current year, and -1 is the previous time observation of five years ago) explains democracy score in current year. The inclusion of lagged variable can have both negative and positive effects. On a positive side, as Keele (2005) explains, it reduces the model misspecification bias, because in a dynamic model like this a lagged variable can help to explain the dependent variable considering its past observations. On the negative side, it can suppress the estimated values of other coefficients, thus resulting in inefficient estimates. The reason that it is relevant to add the lagged democracy variable in this study is because democracy is a dynamic political phenomenon, and it builds upon past historical and political experiences of a specific country. Thus, the lagged variable can explain the democracy in a current year.

c) Country dummies: One of the peculiarities of dynamic panel models is that there may be an unobserved heterogeneity between different countries. To address this, I can use the fixed effects least squares dummy variable (LSDV) model, by introducing a dummy variable for each country (n), and then including ($n-1$) of them into the functional model. Gujarati & Porter (2009)

explain that “the least-squares dummy variable (LSDV) model allows for heterogeneity among subjects by allowing each entity to have its own intercept value” (p. 596). It is important to exclude one of the dummy variables from the regression to avoid dummy variable trap.

Econometric Model:

The Least Squares Dummy Variable model’s econometric model is:

$$\text{Democracy}_{it} = \text{Democracy}_{t-5} + \text{EGINI} + \alpha_{i-1} + u_{it} \quad (1)$$

where α_i is the country dummy (Armenia, Albania, ----- Ukraine).

Therefore, in order to use the specified model, I will need a panel data across time and across countries. The details of the data are presented in the next part.

Data and Sample:

The data for this study includes secondary research and are gathered from multiple sources. The observations for dependent and independent variables are collected from publicly available datasets of previous research.

- Dependent variable of Democracy, that is being measured by the average value of political rights score and civil liberties score, is collected from Freedom House dataset (2020), that includes yearly observations for 195 countries around the world, starting from the year 1973. The scores for post-soviet and eastern bloc countries have been predominantly reported starting 1991, after the collapse of the Soviet Union.

- The independent variable GINI is the education inequality index that has been estimated by Thomas Ziesemer (2016) using Barro and Lee's (1999) dataset for 145 countries over the period of 1950 to 2010 with five years interval.
- The independent variable FreedomScore_Lag5 is the Lagged Variable of the dependent variable with 5 years of lag.
- The dummy variables have been coded by group, so that each group (country) has four observations at different points of time (1995, 2000, 2005 and 2010).

Sample size: The initial observation of the datasets allows me to draw the sample size based on the available observations for post-soviet countries. To get a balanced panel dataset I can obtain data on 18 countries (x) (10 post-soviet countries and 8 eastern bloc soviet satellite countries) and 4 point of time (t), making the overall sample size $xt=72$.

Risks of multicollinearity, autocorrelation and heteroscedasticity in panel data.

Panel data is useful because it brings more variability across n observations and t time periods and allows observing any existing heterogeneity. But we also must be careful because panel data can violate the assumptions of no multicollinearity, no autocorrelation and no heteroscedasticity for OLS to be BLUE (Best Linear Unbiased Estimators).

Multicollinearity: In my dataset there is a risk of multicollinearity because I consider a lagged dependent variable as an independent variable, which may cause the lagged variable to be linearly correlated with other independent variables. This can cause the high standard errors and incorrect t statistics, and inefficient coefficients. To make sure that there is no high multicollinearity I ran VIF (variance inflation factor) on STATA. Given the results of the VIF, I can see that at one independent dummy variable (Slovenia) and one independent continuous

variable (EGINI) have high VIF scores (>10), which means high multicollinearity. To better understand which independent variables may be highly correlated to each other I looked at the correlation matrix (See

Table 5: Correlation Matrix Table 6: Correlation Matrix Continued). The only concerning correlation that the matrix shows is that between the Freedom Score (dependent variable) and the Freedom Score Lagged (independent variable). Since there is no concerning correlation between any two dependent variables, I will not omit any independent variables to avoid specification and omitted variable bias.

Table 1: Variance Inflation Factor (VIF)

Variable	VIF	1/VIF
EGINI	13.58	0.073629
Slovenia	10.09	0.099059
Freedom_lag5	6.97	0.143403
Croatia	6.19	0.161525
Kyrgyzstan	6.05	0.165292
Lithuania	4.17	0.239872
Poland	3.70	0.270212
CzechRep	3.30	0.302858
Slovakia	3.21	0.311615
Estonia	3.15	0.317005
Latvia	3.14	0.318505
Hungary	3.12	0.320867
Ukraine	2.96	0.337429
Moldova	2.95	0.339192
Tajikistan	2.22	0.449856
Romania	2.20	0.454163
Albania	2.02	0.494482
Kazakhstan	2.00	0.500749
Armenia	1.92	0.521923
Mean VIF	4.37	

Another way to address multicollinearity is to increase the number of observations, which at this point is not possible due to the limited number of post-soviet republics and the limited available time series data.

Heteroscedasticity refers to a condition in which the variance of the residual term in a regression model varies widely or is not constant. If it varies in a systematic way the model may

be poorly defined and should be modified so that this systematic variance is explained by one or more additional predictor variables. The null hypothesis is that there is constant variance which means it is homoscedastic. And, since the p value is not small enough to reject the null hypothesis, it can approve the null of data being homoscedastic, i.e. no heteroscedasticity. The absence of heteroscedasticity is also shown in Figure 2: Residuals plotted versus Fitted Values.

Table 2: Breusch-Pagan Test for Heteroscedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

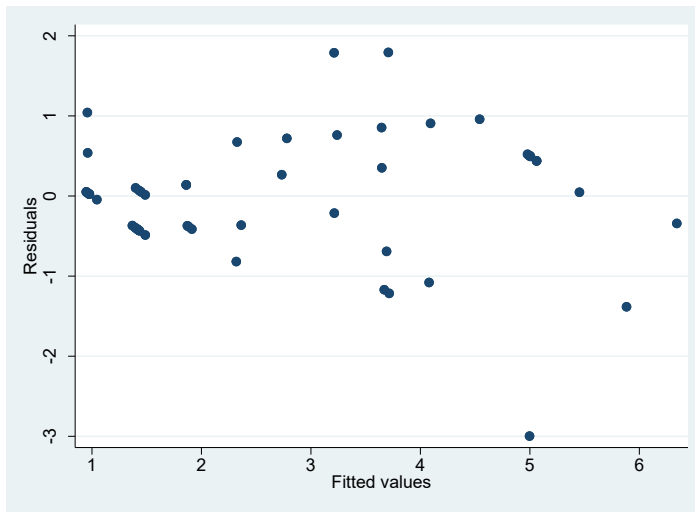
Ho: Constant variance

Variables: fitted values of FREDDOMSCORE

chi2(1) = 0.11

Prob > chi2 = 0.7392

Figure 2: Residuals plotted versus Fitted Values



Autocorrelation: In panel data sets the risks of autocorrelation can be high because it includes time series data, where autocorrelation can happen due to the correlation between the error terms of the variables over time. This risk is especially significant in my data set, because I included a lagged variable. The error terms of lagged variable can be correlated to the error terms of the dependent variable. To test for autocorrelation the Arellano–Bond test for first order

(AR1) and second order (AR2) serial correlation could be used. To fix for autocorrelation, I run generalized least squared (GLS) regression, which corrects the mode for any unobserved autocorrelation issues.

Part III: Discussion of the Results

Table 3: Descriptive Statistics shows the dependent and independent variables with the number of observations (N), the mean values and the standard deviations. Looking at the standard deviation we can see that most of the variables so not significantly vary from their mean values, thus the distribution can be normal.

Table 3: Descriptive Statistics

VARIABLES	(1) N	(2) mean	(3) Sd
EGINI	72	0.113	0.0393
FREDDOMSCO	72	2.931	1.808
RE			
Freedom_lag5	54	3.009	1.798
Albania	72	0.0556	0.231
Armenia	72	0.0556	0.231
CzechRep	72	0.0556	0.231
Estonia	72	0.0556	0.231
Croatia	72	0.0556	0.231
Hungary	72	0.0556	0.231
Kazakhstan	72	0.0556	0.231
Kyrgyzstan	72	0.0556	0.231
Lithuania	72	0.0556	0.231
Latvia	72	0.0556	0.231
Moldova	72	0.0556	0.231
Poland	72	0.0556	0.231
Romania	72	0.0556	0.231
Russia	72	0.0556	0.231
Slovakia	72	0.0556	0.231
Slovenia	72	0.0556	0.231
Tajikistan	72	0.0556	0.231

Ukraine 72 0.0556 0.231

To make sure that the residuals are normally distributed, we can run the skewness and kurtosis test for normality, as shown in Table 4: Normality Test The results show that since the probability of the skewness and the kurtosis are greater than 0.05, as well as prob>chi2 with the value of 0.5930, then we cannot reject the null hypothesis that the data follows normal distribution. Consequently, we can assume that the data is normally distributed around its mean.

Table 4: Normality Test

Variable	Obs	Pr(skewness)	Pr(kurtosis)	Joint test	
				Adj chi2(2)	Prob>chi2
resid_freedomscore	54	0.5300	0.4338	1.05	0.5930

One other thing to look at is the Correlation matrix to make sure that there is no significant correlation between one or more independent variables. In this case, as

Table 5: Correlation Matrix shows the only high correlation is between the dependent and lagged independent variables, which is expected in dynamic panel data sets.

Table 5: Correlation Matrix

	FREDDO~E	Freedo~5	GINI	Albania	Armenia	CzechRep	Estonia	Croatia	Hungary
FREDDOMSCORE	1.0000								
Freedom_lag5	0.9006	1.0000							
GINI	0.0626	0.0522	1.0000						
Albania	0.0989	0.2257	-0.2521	1.0000					
Armenia	0.2359	0.1576	-0.1577	-0.0588	1.0000				
CzechRep	-0.2207	-0.2510	-0.3164	-0.0588	-0.0588	1.0000			
Estonia	-0.2207	-0.2056	-0.1020	-0.0588	-0.0588	-0.0588	1.0000		
Croatia	-0.1065	-0.0240	0.3786	-0.0588	-0.0588	-0.0588	-0.0588	1.0000	
Hungary	-0.2207	-0.2283	-0.2729	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	1.0000
Kazakhstan	0.3728	0.3392	-0.0749	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588
Kyrgyzstan	0.3728	0.2711	0.4461	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588
Lithuania	-0.2207	-0.2283	0.0703	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588
Latvia	-0.1750	-0.2056	-0.1071	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588
Moldova	0.0533	0.0668	0.0990	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588
Poland	-0.2207	-0.2283	-0.0037	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588
Romania	-0.1065	0.0214	-0.1078	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588
Russia	0.3500	0.2257	-0.1472	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588
Slovakia	-0.2207	-0.1829	-0.0508	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588
Slovenia	-0.2207	-0.2283	0.5325	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588
Tajikistan	0.3957	0.4300	-0.0245	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588
Ukraine	0.0533	0.0441	0.0904	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588

Table 6: Correlation Matrix Continued

	Kazakh-n	Kyrgyz-n	Lithua-n	Latvia	Moldova	Poland	Romania	Russia	Slovakia
Kazakhstan	1.0000								
Kyrgyzstan	-0.0588	1.0000							
Lithuania	-0.0588	-0.0588	1.0000						
Latvia	-0.0588	-0.0588	-0.0588	1.0000					
Moldova	-0.0588	-0.0588	-0.0588	-0.0588	1.0000				
Poland	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	1.0000			
Romania	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	1.0000		
Russia	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	1.0000	
Slovakia	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	1.0000
Slovenia	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588
Tajikistan	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588
Ukraine	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588	-0.0588

	Slovenia	Tajiki-n	Ukraine
Slovenia	1.0000		
Tajikistan	-0.0588	1.0000	
Ukraine	-0.0588	-0.0588	1.0000

Assuming that the assumptions of Ordinary Least Squares model to be BLUE (best linear unbiased estimators) are held, a regression has been run with the model specified in Part II. Table 7: OLS Regression Output represents the OLS regression output, showing the coefficients for each variable and the standard error in parenthesis. The overall model is significant with an R square value of 0.974, meaning that 97.4% of the variation in the dependent variable is explained by the specified model. The standard error of each independent variable is not big; thus, we can imply that we have received unbiased and efficient estimates. Below is the interpretation of each coefficient separately:

a) The first thing to look at is the constant value, which in this case represents the intercept for the country dummy (Russia) that has been selected as the base of comparison for other country dummies. We can interpret the constant as Russia’s estimated democracy score intercept = 3.856. The rest of the countries represent the variation from the intercept.

b) Looking at the other countries’ coefficients, we can state that compared to Russia, all the countries improved their democracy score over time. The minus sign means that the democracy score went down, which means that at a scale 1-7, where 1=fully free and 7=not free,

these countries improved their democracy scores. The numbers presented compare each country to Russia. The intercept coefficients for each country represent their democracy scores at the starting point, compared to Russia.

As we can notice, there is a pattern that the eastern bloc countries that are mostly included in the current European Union area improved their higher democracy scores over time more, than the post-soviet countries that are not part of the European Union.

c) Next thing to look at is the coefficient of the GINI education inequality index, which tells us that 0.1-point decrease in the education inequality index leads to 0.834 point of improvement in democracy score (decrease of the score means improvement). Thus, my sign hypothesis has been approved that decreased inequality of education leads to a more consolidated democracy in post-soviet countries.

Table 7: OLS Regression Output

VARIABLES	(1) FREDDOMSCO RE
Freedom_lag5	0.169** (0.0725)
EGINI	8.384* (4.788)
Albania	-1.697*** (0.303)
Armenia	-0.735** (0.295)
CzechRep	-3.355*** (0.388)
Estonia	-3.690*** (0.379)
Croatia	-3.707*** (0.531)
Hungary	-3.439*** (0.377)
Kazakhstan	-0.0683

	(0.301)
Kyrgyzstan	-0.661
	(0.525)
Lithuania	-3.886***
	(0.436)
Latvia	-3.350***
	(0.378)
Moldova	-2.289***
	(0.366)
Poland	-3.789***
	(0.410)
Romania	-3.131***
	(0.317)
Slovakia	-3.784***
	(0.382)
Slovenia	-4.486***
	(0.678)
Tajikistan	-0.0800
	(0.318)
Ukraine	-2.250***
	(0.367)
Constant	3.856***
	(0.496)
Observations	54
R-squared	0.974

Part IV: Conclusions and Implications

The Ordinary Least Squares regression of panel data with 72 observations (18 countries and 4 time periods with 5-year lag) of post-soviet states and post-soviet satellite eastern bloc countries allowed me to draw conclusions about the relationship between education inequality over time and the democratic consolidation in the countries of study. This cross-country analysis over time gives two major conclusions: a) all post-soviet countries improved their democracy scores, compared to Russia, while most of the Eastern bloc satellite countries had larger improvements than the others. The reason can be their membership to European Union that

promotes democracy and democratic values in its member states. b) the education inequality index explains democratic consolidation in post-soviet countries: the less inequality in education, the more consolidated democracy there is.

This analysis could be more detailed and could have better implications if either ordered logit model was used for estimation (considering that the dependent variable is rather categorical than continuous), or the General Moments Method (GMM) that could better address the threats of autocorrelation in dynamic panel datasets.

This research has both theoretical and empirical significance. It adds to the literature of understanding the determinants of democracy, as well as has political implications about the systemic effects of educational inequality in post-soviet republics. Policy practitioners can also use the research findings, looking at the comparative analysis of educational inequality index in post-soviet republics and its relationship to democratization practices of the studied countries. Further qualitative research may be required on a case-by-case basis to understand the current educational policies and comparative political economy of the studied countries.

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Appendix 1: Stata Commands: Snapshot of Do File

```

MyDo x
1 //importing dataset from excel spreadsheet
2 import excel "C:\Users\aniap\OneDrive\Desktop\CGU\PP482\paperproject\Book1.xlsx", sheet("Sheet2") firstrow
3
4 //Organizing the data
5 sort Country Year
6 by Country: gen Freedom_lag5 = FREDDOMSCORE[_n-1]
7 egen country_ID = group( Country ) //generating a new panel by group
8 tabulate country_ID, gen(Countries)
9 tabulate Year, gen(Years)
10
11 //to export the results of summary I used the command below
12 outreg2 using results, word replace sum(log) eqkeep(N mean sd) keep( FREDDOMSCORE Freedom_lag5 EGINI Albania Armenia CzechRep Estonia Croatia Hungary
13 Kazakhstan Kyrgyzstan Lithuania Latvia Moldova Poland Romania Russia Slovakia Slovenia Tajikistan Ukraine )
14
15 //To start the analysis, first I introduce the data as panl, and then run OLS
16 xtset country_ID Year, yearly
17 reg FREDDOMSCORE Freedom_lag5 EGINI Albania Armenia CzechRep Estonia Croatia Hungary Kazakhstan Kyrgyzstan Lithuania Latvia Moldova Poland Romania Slovakia
18 Slovenia Tajikistan Ukraine
19
20 //Testing for multicollinearity, autocorrelation and heteroscedasticity
21 vif //test for multicollinearity
22 hettest //test for heteroscedasticity
23 predict FREDDOMSCORE_pred
24 predict resid_freedomscore, residuals
25 scatter resid_freedomscore FREDDOMSCORE_pred
26 //the fitted values have been plotted against residuals
27 //below is the test for autocorrelation through Generalized Least Squares estimation
28 xtglm FREDDOMSCORE Freedom_lag5 EGINI Albania Armenia CzechRep Estonia Croatia Hungary Kazakhstan Kyrgyzstan Lithuania Latvia Moldova Poland Romania Slovakia
29 Slovenia Tajikistan Ukraine, igls panels(heteroskedastic)
30 estimates store hetero
31 xtglm FREDDOMSCORE Freedom_lag5 EGINI Albania Armenia CzechRep Estonia Croatia Hungary Kazakhstan Kyrgyzstan Lithuania Latvia Moldova Poland Romania Slovakia
32 Slovenia Tajikistan Ukraine, igls
33 local df = e(N_g) - 1

```

Full codebook can be accessed by contacting the researcher at ani.apyan@cgu.edu

Appendix 2: Codebook

Year - represent the time periods with five year gaps
EGINI represents education inequality index (ranges from 0 to 1, where 0 = perfect equality and 1=perfect inequality)
FREDDOMSCORE is the dependent variable that measures democracy. The Freedom House Political rights index and civil liberties index have been used to calculate the average freedom score (the values store range from 1 to 7 where 1=Fully Free, 7=Not Free)
Freedom_lag5 represents the freedom score Lagged by 5 years
Country_ID is the dummies categorized by group
The names of the 18 countries represent dummy variable panel data with four-time observations for each

**Looking back, looking forward:
Reflections on teaching an academic English course**

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Abstract

This paper examines the reflective comments of two English teachers who taught an Academic English course at a private Japanese university over the course of two quarters (April to July 2021). Data was collected through an online questionnaire and analysed using a grounded theory approach. The reflective comments demonstrate the evolution of the teachers' thoughts and pedagogy from the initial stages of teaching to the completion of two quarters.

Keywords

Academic English, course design, curriculum development, material design, qualitative analysis, reflection

1. Introduction

This paper looks at how two English teachers taught the same academic English course at a private university in Japan and, through their reflective comments, it illustrates the evolution of their thoughts and pedagogy from the initial stages of teaching to the completion of two quarters. Data was collected using an online questionnaire and analyzed using grounded theory as themes emerged. Through an analysis of the questionnaire responses, it is clear that each teacher approached the course in their own way and adapted their teaching as the course progressed. It is hoped that this paper will help teachers and course coordinators understand the fluid nature of teaching an academic English course, especially for those teaching the course for the first time.

2. Background – Academic English

Despite the initiative to develop students' English ability by the Japanese Ministry of Education, Sports, Science and Technology (MEXT), there is almost no focus on academic English at Japanese junior or senior high schools. The few high schools that do concentrate on academic English tend to teach writing for entrance exams. Conversely, almost all Japanese universities offer academic English courses in various forms. These courses range from tightly coordinated courses to laissez-faire courses which allow teachers to teach whatever they want using any material they wish. Similarly, at Japanese universities, course coordinators are often given free range to create academic English courses as they like with only a cursory level of supervision.

2.1 Nanzan University, Eibei, and the AEA course

Nanzan University is a private Catholic University based in Nagoya, Japan. Established in 1949, it has gained an excellent reputation especially regarding English language education. The Department of British and American Studies (known as '*Eibei*' in Japanese) is renowned for fostering students with a high level of English. As explicated in earlier papers (Cripps, Sakamoto & Toland, 2020; 2021) the 'Academic English A' (AEA) course at *Eibei* evolved as a direct result of major curriculum reform which took place in 2017. The course was designed to introduce first-year students to the rigors of academic English with a specific focus on academic writing and academic presentations. In 2016, Nanzan University switched to a quarter system (with one quarter consisting of seven weeks). In parallel with the design of the AEA course, four in-house textbooks were created, i.e., one for each quarter (for further information on the development of the textbooks see Cripps, Sakamoto & Toland, 2020; 2021).

2.2 The importance of reflection

Reflection is an essential skill for educators who wish to enhance their teaching and contribute to the improvement of their educational institution. When practiced correctly, reflection can help cross the divide between theory and practice (Cripps, 2004). It goes without saying that different teachers approach a course in various ways; some focus on micro aspects of language while some have a holistic approach; some are strict while others are more laid-back.

For years, reflection has been an essential component of teacher training and it is a necessary part of the evolution of any course and course refinement (Evans, 2002). Reflection is a vital element to the development of teaching skills and, by asking teachers to reflect upon what they have taught, course coordinators can help refine their existing courses and improve their course design (Irons, 2018; Robinson, Robert & Jones, 2020).

3. Methodology

April 2021 was the first opportunity for teachers who had not created the AEA textbooks to use them to teach the AEA course. The AEA course coordinator (Tony Cripps) was interested to see how both Nikki and Justin, two new *Eibe* teachers, would adapt to teaching the course and how they would use the AEA textbooks. This paper examines their reflections on using the AEA textbooks and teaching the course. An online questionnaire was created using the SurveyMonkey website. The questionnaire comprised of eight open-ended questions designed to elicit their reflective comments. The questionnaire was administered in the summer of 2021 after Nikki and Justin had finished teaching the AEA courses in quarter one (Q1 – April to May) and quarter two (Q2 – June to July). The responses were examined using a grounded theory approach and themes emerged from the data (see Ngulube, 2015; Saldaña, 2013). In their research study Miles, Huberman and Saldaña (2014) examined the course design and pedagogical decision-making processes of English teachers at a liberal arts college and outline five distinct methods of qualitative analysis: exploring, describing, ordering, explaining, and predicting. This paper echoes some of these steps. Below, an overview of the backgrounds of Nikki and Justin and the composition of their classes are provided before turning to an examination of their reflective comments.

4. Teaching background – Nikki and Justin

Nikki

Nikki has been teaching in Japan for over 20 years. She started teaching at private English conversation schools and since 2007 she has been teaching at various higher-level institutions. Nikki started teaching part-time at Nanzan University in September 2020 and she also teaches a course on popular culture at a public university in Aichi Prefecture. Nikki also has experience

teaching other university English classes. Despite this experience she noted in her questionnaire response that: *“This is the first time I have taught a class full of English majors, so the students’ English is higher level than that of the students in the more general, elective classes.”*

Justin

Before teaching at Nanzan University, Justin worked for ECC Foreign Language Institute in both their English schools and for their Corporate Relations Division (which dispatches teachers to teach company employees, university students, and *‘juku’* [cram school] students on-premise). In that role, Justin taught *“a few university classes over the years, with subjects ranging from simple conversation classes to academic presentation.”* In 2018, he began working at a two-year college where he teaches a broad range of subjects from four skills classes to teaching hospitality English. Justin first started teaching at Nanzan University in April 2021 and the AEA course was the first course that he taught at the University.

5. AEA class composition

In the online questionnaire Nikki and Justin were asked to provide some general information on the AEA classes that they taught in Q1 and Q2. Nikki taught the same group of first-year students in Q1 and Q2 (one class per quarter) and Justin taught two groups of students in Q1 and Q2 (again, these were the same students).

Nikki

Nikki’s AEA class in Q1 and Q2 had 27 students: 8 males and 19 females. She described their English level as *“good to great”*. Some of the students had experienced three to six-month homestays in English-speaking countries. Nikki commented on the group dynamics: *“At the*

start of Q1 they were all eager and attentive. They chatted easily together and generally worked well together. For the poster presentation I put one male with two females, assigned by the order of their name on the class register. Not all groups enjoyed this random grouping, which led to my choice to let them choose their own groups later in the course.” Face-to-face classes were interrupted for a few weeks because of the Covid-19 situation and classes were temporarily moved online. Nikki noticed that the students “*felt more agitated*” when they returned to face-to-face classes but that the students soon “*got back into it and worked well in challenging circumstances.*”

Justin

Justin taught his first group of AEA students on Monday and Thursday afternoons (3rd period). Like Nikki, he had 27 students: 7 males and 20 females. He described the students’ level, and the mood of the class, as follows: “*The level was quite good, much higher than I anticipated. The mood in the class was very good and I think the students were comfortable and quite cheerful. Of course, there were still some shy students, and no one seemed to like when I randomized groups, particularly when it meant male and female students had to work together (but that seems to be common in Japan).*” Justin taught his other AEA class in the 4th period (again on Mondays and Thursday). He had 28 students: 8 males and 20 females. According to Justin, this class seemed “*a little bit different*” compared with the third period class: “*The level was a bit higher than the 3rd period class and the students were also a bit more outgoing and talkative. Also, a very fun class where everyone seemed comfortable with each other (though of course there were a handful of students that were on the quiet side).*”

6. Reflective comments

The class compositions and descriptions provided by Nikki and Justin should resonate with anyone who has taught English at a Japanese university, especially to first-year students. After initially asking them about their class composition, the online questionnaire, through open-ended questions, explored their thoughts on teaching the AEA course (both positive and negative before they started teaching it). The questionnaire responses were analyzed using a grounded theory approach and six distinct themes arose from the data.

6.1 Pre-AEA teaching thoughts

Nikki

Before teaching the AEA course Nikki had some previous experience teaching students in an Academic English B reading class for sophomores in *Eibe*. She described these students as “...*smart and high level, so I thought these students (the AEA students) may be similar. I assumed the students’ English level would be reasonably high and I was correct.*” Nikki stated that she also assumed that the students would be motivated and enthusiastic as they are English majors, and this assumption was confirmed while teaching the students. When commenting on her thoughts regarding the AEA textbook she admitted her initial reservations: “*On my first look at the text I was a little disappointed that it was all black and white. There also looked to be so many activities to cover that it could be overwhelming for me and the students.*”

Justin

Justin stated that he was both excited and nervous to teach the AEA course: “*I had never taught such a course so I was happy to have the chance to try something new but also worried that I might make many mistakes.*” He was especially concerned about the fact that the AEA course

“...did not actually focus on English-language skills, but rather aimed to teach the students other, broader skills in English.” Justin explained that he is quite a casual and relaxed teacher *“...so I was a little scared about how my teaching style might or might not suit the spirit of the course. Still, I think I was more excited than anything to take on a new challenge.”*

6.2 Experiences of teaching AEA in quarter one

Nikki and Justin managed to safely negotiate teaching in Q1 through a very difficult time of uncertainty caused by the Covid-19 situation, i.e., teachers and students never knew if or when the courses would have to be switched to being taught online or face-to-face. Nikki and Justin reflected on their experiences of teaching the AEA course in Q1.

Nikki

Nikki said the experience was very positive and she was surprised by how well and easily the students completed the tasks or activities that she gave them. QR codes were embedded in the AEA textbook which allowed the students access to a wide selection of videos. Nikki seemed to appreciate the design of the textbook but also pointed to the limitations of using QR codes: *“This format was an easy and effective way to introduce related content on the topic. I very rarely needed or wanted to supplement the text as it had more than enough in it. Occasionally, the QR codes led to a source being no longer available, so even though the text was compiled recently, technology is creating the need for more constant updates.”*

Justin

For Justin Q1 was also a positive experience. He noted that: *“The students blew away my expectations in terms of both ability and motivation. They were also some of the best-behaved students I’ve ever taught.”* He enjoyed teaching the students and using the AEA textbook

material. Justin stated that he was *“very happy to find just how project-based the syllabus was”* which is the way he prefers to organize his classes when he has control over the syllabus.

6.3 Experiences of teaching AEA in quarter two

By Q2 (June – July 2021) Nikki and Justin seemed to feel more comfortable teaching the AEA course despite the various challenges that the Covid-19 situation created. They reflected on their experiences of teaching the AEA course in Q2.

Nikki

Nikki commented that the AEA textbook for Q2 was much slimmer than Q1 and she wondered if there would be enough material to cover. However, at the end of Q2, she commented that she realised that the activities and design of the course allowed for the students to take on more, and research more themselves, particularly regarding what English materials they needed and would use for the class activities. She highlighted the fact that some of the students also realised this and provided a quote from one of her students to illustrate this fact: *“In high school the teacher tells us what to do but here we have to think for ourselves.”* This comment was punctuated by a resounding *“Yes!”* from Nikki.

Justin

As noted earlier, Justin finished Q1 feeling very confident and satisfied both with the job he had done and the students’ effort and work. He was, in his own words, *“excited for quarter 2.”* That being said, he admitted that he was somewhat flustered at the end of Q1 since it seemed to go by very quickly. By the beginning of Q2 however, he felt that he had found his footing: *“I was comfortable enough with the students and the material to make adjustments I thought*

were necessary and I felt that overall, the pace of the quarter was much calmer and afforded the students the opportunity to produce really great work.”

6.4 Positive aspects of quarter one and quarter two

Once Q1 and Q2 were completed, Nikki and Justin were asked to reflect on what went well in both quarters.

Nikki

Again, Nikki was very positive about both quarters and commented that everything went well. Initially, she admitted that she was worried that both setting up the first poster presentation and the practicalities involved in 27 students presenting would be complicated. However, her concerns soon dissipated: *“...they all just got on with it and it flowed well. By the end of Q2 I understood how the different projects – poster and PechaKucha presentation, short film, joint essay and panel discussion – gradually developed the students’ autonomy and provided them with activities to learn and develop various skills, such as public speaking and presentation skills, tech savvy, cooperative learning and research.”* Nikki reflected that the students learned and experienced a lot and that many students were proud of their work. In fact, she observed that there were some excellent pieces of work in each of the project categories.

Justin

Justin was also overwhelmingly positive when looking back on Q1 and Q2. He highlighted three specific areas – the classroom atmosphere, the students’ progress, and his time management. Justin said that the class atmosphere that he cultivated *“...was a great balance between comfortable and serious. The students all seemed to be very comfortable with one another and with me, and I think they enjoyed the class just as much as I did (which was a lot).”*

He believed that it was clear to the class that everyone had goals to meet and that completing them was essential. Justin noted that the students were open to accepting more responsibility for their own work: *“I asked the students to work, and left them responsible for their own management, they truly stepped up to the plate.”* Regarding the skills that they gained he felt that all the students could understand the main goals of the course, i.e., learning the basics of academic research, proper formatting, and the reasons why and situations when citations are necessary. Lastly, he noted that his time management skills improved and resulted in all of the deadlines being completed *“nearly exactly on schedule.”*

6.5 Making improvements

Of course, one of the most important considerations when reflecting on a course and the materials used is to identify areas where improvements can be made. Nikki and Justin were asked, with the benefit of hindsight, what they would have done differently in Q1 and Q2.

Nikki

Nikki remarked that for the poster and PechaKucha presentations and the final essay panel discussion she was aware that timekeeping is crucial and that it was easy to run out of time at the end. She said that she tried to be strict but *“I still need to be stricter!”* especially considering the fact that the second round of poster presentations were shorter (and students had less time) than the first round. She also noted that some PechaKucha presentations were not timed well by the students and that most clicked through their slides manually. If given the opportunity to teach the course again Nikki said that she would *“get them to all use timed slides of 20 seconds to help keep better time.”* Finally, due to Covid-19 restrictions in Q1 and Q2, movement around class was limited. Nikki admitted that she would have liked *“more various combinations of students”* when conducting group work and giving presentations.

Justin

From his reflective comments it is clear that Justin would probably have given his students more autonomy: *“One thing I should have done from the beginning (and I did in Q2) was give the students more credit. Especially in the beginning of the course, I didn’t know what to expect as far as student level and motivation, and I feel that I spent a lot of unnecessary time on explanations and examples at times.”* He also felt that perhaps he gave instructions *“too far ahead”* and that students had *“too much time to prepare.”* Finally, he wished that he had pushed the discussion components of the textbook more: *“These students were very capable and I should have focused more on having discussions at times over assignment preparation.”*

6.6 Looking forward

In the final section of the questionnaire Nikki and Justin were asked if they felt that teaching the AEA course had influenced how they teach (or will teach) other classes. The remarks below demonstrate a clear, positive influence that their experiences teaching AEA had on their teaching. In this section, their comments are presented verbatim as they provide a comprehensive insight on the effect that teaching the AEA course had on them.

Nikki

“It was the first time for me to use peer checking for essay writing. I walked around after the activity, and there were just a few minor corrections and generally, “It’s good”. Then, I tried peer checking for essay writing in another Nanzan class – Literacy for first year GLS. This time I wrote on the board 10 examples of ‘editing symbols’ (e.g., SV for mistake in subject verb agreement, P for punctuation incorrect or missing) and asked them to use a different colour pen. This time the students were bolder with their corrections. It appears the students need

clear guidance how to peer check effectively. I picked up some good resources from the web links in the text, for example, the writing platform kibir.com.”

Justin

“One thing that I started doing about halfway through the first quarter is utilizing YouTube videos (which are a significant component of the AEA textbook) in a variety of ways in other classes that I teach. By the end of the first quarter, I had made several templates for various activities using YouTube videos that I started using regularly in other courses. AEA made me realize firstly how much I was underusing this resource and secondly how easy it is to use. Next, it reinforced my preference for project-based learning (something I’ve really been gravitating toward more and more over the last few years) and also made me consider how I could connect different assignments together (just how the final research paper and panel discussion from Q2 are linked). Lastly, it made me really see the value in the CLIL approach, which I had heard of, but had only had experience teaching in one other class (which went very poorly). It changed my opinion and made me truly believe that, when done right and in the right circumstances, it’s probably the best way to approach language classes. It’s something I’d like to try and hone in the other classes I teach where it might work.”

From the above comments it can be seen that Nikki has realized the benefits of peer checking and teaching students editing symbols. She feels that these two skills can be transferred (and are worth transferring) to other classes. Nikki notes that she also makes use of the good resources (such as web links and YouTube links) provided in the AEA textbook. Justin echoes the usefulness of incorporating YouTube videos into other classes through the use of his own templates. In addition, Justin stated that teaching the AEA course also reconfirmed his preference for project-based learning and the advantages of project-based learning.

7. Limitations

A clear limitation of a study of this nature is the fact that it is hard to generalize from the findings. This paper simply looked at the experiences of two teachers who taught the same course for the first time. Trying to draw wider conclusions from the data and extrapolating it to a wider field should be accompanied with an element of caution. That being said, the paper provides a snapshot of the experiences of these teachers and, through an analysis of the rich data, it should lead to a better understanding of how the course could be taught in the future.

8. Conclusion

One of the most important facets of curriculum, course, and material development is honest reflection. Often teachers are too busy to take the time to reflect on their teaching on a day-to-day basis however, once a course has been taught, even a short time spent reflecting can considerably enhance the course and lead to improvements in an instructor's teaching. The reflective comments provided by Nikki and Justin provide insight into how they approached their courses and how they dealt with the challenges they faced – especially considering the Covid-19 situation. Their informative and candid reflective comments will certainly lead to the refinement of future academic English courses and textbooks at Nanzan University.

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Biodata

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Perspectives from Engineering Faculty on Teaching Expectations in a Post-COVID World

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Introduction

The coronavirus (COVID-19) pandemic has required faculty to rapidly adapt to online teaching, a modality that was rare in engineering education prior to the pandemic. In March 2020, a national emergency was declared in the US (Vaterlaus et al., 2021), and essentially all higher education institutions shifted to an online teaching model. With this rapid shift, it is important to study how faculty experienced the unprecedented challenge of the transition and understand their teaching expectations of teaching modality for the Fall 2021 semester following a year of online teaching. This study employed a qualitative approach leveraging focus groups and represents 28 engineering faculty's reflections on their teaching experience and expectations at a midsize northwestern US university. The data was collected during the late Spring 2021 semester when the Fall 2021 semester was expected to return to live, full capacity instruction. Themes identified through the data analysis are discussed in context of better understanding engineering faculty teaching expectations.

Although the institution offered a traditional college experience during the Fall 2020 semester, faculty had a choice to continue with online teaching. Health precautions on campus had been changed to prevent the spread of COVID-19 in the classroom and included policies such as mask wearing, social distancing, adjusted classroom capacity, and blended learning. A majority of faculty in this study chose to teach online in the Fall 2020 semester and the online learning was either in asynchronous or synchronous format. The following questions were explored:

- 1) What have you learned teaching during COVID-19 that will influence your teaching in the future?
- 2) What are expectations for teaching in the fall 2021 semester with the current state of COVID-19?

Methods

Qualitative approach and research paradigm

This study employed a focus group approach with the discussion group aimed at better understanding how faculty thought about their experiences and developed their expectations of teaching during the pandemic time (Krueger & Casey, 2014). Focus groups were an appropriate approach because open-ended questions “allow participants to select the manner in which they respond”, and “focus groups encourage interaction among respondents and allow people to change their opinions after discussions with others” (Krueger, 1998, pp.6). This approach allowed the researchers to focus on producing concentrated amounts of data on precisely the areas of interest - teaching perspectives during the academic year 2020/2021 and what faculty expected for teaching in the Fall semester 2021/2022. Discussions were conducted in an unstructured way where respondents were free to provide any perspectives. At the conclusion of each focus group, the moderator asked participants to verify the moderator’s summary comments.

Context

In the Fall semester 2020, universities and colleges in the US varied in their approaches and some reopened with online, in-person, hybrid or mixed instructional methods (Vaterlaus et al., 2021). Similar to many other higher education institutions, the institution involved in this project allowed faculty to decide whether to employ blended/synchronous, or asynchronous, or in-person instruction in both Fall and Spring semesters 2020/2021. During this period, the pandemic affected the US severely and COVID vaccination was just rolling out in the US in December 2020. Faculty at this institution used Webex, a software available for teaching online in non-engineering courses prior to the pandemic, and none of faculty in this study used to teach virtually before. Some engineering faculty instructed in-class in the academic year 2020/2021, while others conducted blended/synchronous instruction only in the Spring semester.

Data collection methods, instruments, and technologies

Five focus groups were conducted in April 2021; each group ranged 2-10 members, and included mixed female and male faculty, tenure and non-tenured faculty. Each focus group interview via Zoom lasted approximately average 50 minutes. Interview transcripts were de-identified and stored in encrypted files on secure servers. Among the twenty-eight faculty, 20 were tenure-track and eight non-tenure track faculty, with 14 female and 14 male faculty participating - representing over 21% faculty of the College of Engineering. Faculty represented five departments including civil engineering computer science, electrical engineering, mechanical and industrial engineering, and chemical and biology engineering.

Units of study

The moderator introduced unstructured focus groups to the study questions to foster interactions on the topics studied. Although focus group analysis asserted that the group is the fundamental unit of analysis, Morgan (1999) argued that the discussion in focus groups depends on both the individuals that make up the group and the dynamics of the group as a whole (Morgan, 1999) . Individual faculty have academic freedom to decide how to teach their course and there are mixed tenure and non-tenured faculty in each group discussion. Tenure-

track faculty's workload include teaching, research, and service, while non-tenured faculty are mainly responsible for teaching.

Data processing

Interviews were transcribed verbatim in NVivo software (version 20). The code structure was initially two topics of the inquiry, integrated approach inductively and deductively to search for common thoughts and differences between faculty and within group. The research team independently immersed themselves and identified words and phrases that matched with the research goals, then agreed upon data coding.

Data analysis

The focus group approach was used to understand diverse experiences, opinions, and expectations of faculty's teaching experiences during the academic year 2020/2021 and their expectations for the Fall 2021 semester. For example, the focus groups were asked: What have you learned teaching during COVID-19 that will influence your teaching in the future? And, what are expectations for teaching in the fall 2021 semester with the current state of COVID-19? Also, the focus groups were asked questions "What do you think is realistic from a student standpoint to have the instructor do to help them still progress in the class?", "What do you do if somebody misses class?", "What would be the best recommendation that you could get from the institution to help you in the fall?", or "What do you think would be a good kind of message from the administration for the fall?".

Results

Four themes emerged that represented engineering faculty's perspectives: faculty's adaptability to online-teaching and to accommodate students; flexibility versus academic freedom; expected live instruction for the Fall 2021; and, opportunity for potential graduate recruitment.

Faculty's adaptability to online-teaching and to accommodate students

Most faculty learned new skills to adapt with the transition to online-teaching such as creating videos, recording lectures, managing breakout-rooms on Zoom/Webex since many had little experienced with remote teaching. Furthermore, for synchronous classes, faculty were flexible to manage the class in both Zoom/Webex and in-class at the same time, while they were traditionally responsible for a single mode of the instruction. In terms of pedagogy, flipped classroom was implemented during this unprecedented period, though active learning was mainly applied among faculty. Students were required to watch videos and took quizzes before coming to the class. Furthermore, with the online breakout rooms, faculty found more balanced interaction with students rather than in-class as they could "see" all students at once on Zoom/Webex.

Student learning behaviors varied in terms of attendance and engagement. Due to the COVID-related reasons, faculty had to post lectures and class recordings in a learning management system for students, so students could access to their courses' learning materials instead of coming to a synchronous mode. After the Spring semester 2020 when the pandemic suddenly outbreak, faculty were better experienced in the Fall 2020 semester to manage classroom and engage with students as students reported "happy with the online sessions and better in-person faculty – student interactions" in a synchronous class. Moreover, grading empathy was another emerged faculty's adaptability during the pandemic. Some faculty experimented with different components of grading such as weekly quizzes or accumulated classwork practices to engage students.

Flexibility versus academic freedom

“I think my largest fear is that there's going to be an expectation that everything is as accommodating as this last year”, a faculty expressed.

There were contrary opinions about student participation in blended classes. The majority of faculty across five focus groups agreed student participation decreased significantly when students had flexibility to learn blended/synchronous model versus in-person session. For example, a faculty experienced only five out of 40 students attended in the Spring 2021-in-class course, while another faculty saw good attendance for the first few weeks, then “three students at the end of the semester”. On the other side, computer science faculty witnessed the increase of student participation in their online class.

Faculty indicated that, with their teaching experienced in 2020, they expected to have teaching freedom in the Fall 2021 semester to require student attendance. Faculty also expressed desire to be able to see the class and determine how to teach and interact with students. Two department heads conveyed they let faculty decide what would be the best for their class, to be flexible, and did not expect faculty to “two parallel courses” (i.e. synchronous mode). Faculty also expected to have teaching assistants for supporting students and in case the class-size would require blended instruction.

Expected live instruction for Fall 2021

“I absolutely want to be live” – a faculty stated

Twenty five out of 28 faculty expected to teach live in the Fall 2021 semester, while two planned for online and one for blended approach. Faculty appreciated student interactions in person because students’ feedback showed *“the students really need the instructor and the interaction with the instructor”* and *“a lot of nonverbal communication getting missed via Zoom”*. Also, faculty expected a small number of students attended virtually to minimize extra workload.

Faculty have learned and gained some best practices that they expected to carry forward for the Fall 2021 semester such as producing 4–5-minute recap videos, setting up live/scheduled time recap interactive session, using virtual assignment folder for students (e.g. Dropbox) rather than hard-copy assignment collection. The recap video of what was learned each week helped to engage students to conveniently review instead of watching all pre-recorded lectures. Moreover, flipped-classroom pedagogy would continue to be applied as faculty are able to post online materials ahead of the class that require students to prepare either for the in-person class or a blended model.

At the time of focus-group interviews, most of faculty had not yet been vaccinated, so they expected to be flexible to accommodate students depending on student health conditions such as quarantine if needed. If an in-class mode would be implemented, students were expected to come to the class, and online materials such as lecture recording, lecture notes, summary notes should be supportive for students with excused absences only. In terms of learning assessment, faculty expected to have normal midterm and final exams, rather than weekly quizzes or “take home exams” that were implemented for two semesters in 2020. Furthermore, faculty were

willing to extend office hours, provide debriefs, and “giving face to face feedback” to support students.

Opportunity for potential graduate recruitment

There are only two institutions offering graduate-level Computer Science degrees, and only one PhD degree in Computer Science is granted at this institution in the state-level context. A lot of graduate students are working professionals. Since the pandemic occurred, work-from-home or online working and online learning have become a new normal living condition, so faculty suggested that restructuring the graduate-level program of computer science comprising of in-person and online components is opportunistic for potential graduate recruitment.

Discussion

The flipped classroom has been proven effective (Bredow et al., 2021) and applying flipped learning approach in engineering education is “a relatively new field of research but exponential growth” (Al Mamun et al., 2021). Faculty in the present study were flexible to apply the flipped classroom to accommodate the teaching situation and student learning behaviors. Faculty served as second-line responders to not only help encourage students as academic role models, but also help students persevere through the pandemic (Neuwirth et al., 2020).

Representing faculty from different departments of engineering in this study have also illustrated the diverse teaching experiences during the pandemic, so providing engineering faculty instructional timely support to adjust engineering instructional approach is necessary. The interim report of American Society for Engineering Education (2020) indicated the long-lasting problem in engineering education was the lack of training in online teaching skills, while faculty have reported to redesign the course, lab activities, and at the same time, learning new tools and skills in such a sudden manner (American Society for Engineering Education, 2020). However, engineering faculty have illustrated their adaptability to transit to different modalities with student-centered learning outcomes and their empathy to student’s well-being as students experienced the learning disruptions caused by the pandemic (Bigman & Mitchell, 2020). Simultaneously, there was uniform frustration with the lack of time to adequately prepare to switch modalities during the pandemic. Additionally, supporting multiple modalities to accommodate all student needs was uniformly seen as unsustainable.

Student engagement in the transition of online teaching was lower due to COVID-19 (Walker & Koralesky, 2021). Faculty in this study found the synchronous classes were time-consuming extra efforts to manage the class both in-person and online. Thus, they expected to have extra help from teaching assistants to support and accommodate students, and to teach in-person to better faculty-student interactions as well as for the learning assessment and accreditation.

In case of this study, we note several limitations. First, the sample size was small and self-selected faculty within a higher education institution, not representing the full faculty voice in the engineering field. Second, the inquiries were explored in a unique situation of teaching and learning engineering courses during the pandemic that may shift the engineering education from now on in terms of course design and assessment, innovative course delivery, lab interactions, and faculty development support such as instructional technologies. Third, analysis of the data in this study provokes the questions, “how can engineering faculty be better supported to design courses that stimulate learning in such an abrupt interruption of traditional teaching?”, “how have engineering students learned during the pandemic to enhance teaching

and curriculum innovation?”. To address these questions, we propose institutional administration to acknowledge faculty concerns, facilitate diverse teaching approaches, and provide necessary support to adapt with the unknown challenges.

Conclusion

Engineering faculty have adapted well to the transition to various instructional experimentations during the pandemic as they acknowledged both challenges and self-learning opportunities. Difficulties of student engagement and accommodations were identified, so the in-class instruction was highly desired by faculty, especially with the COVID-vaccine discovery. Faculty uniformly agreed that simultaneously supporting all modalities of learning to accommodate COVID was unsustainable going forward and should not be an expectation. Although the study focused on engineering faculty’s perception of teaching experiences and their expectations in a unique period of academic career, it illuminates opportunistic possibilities for recruitment, particularly for graduate-level computer science program. In closing, teaching and learning engineering disciplines have arrays of innovative demands to be discussed in a post-COVID world.

Declaration of competing interests

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Title: Bound by Brokenness: Case Study Narratives from Resilient Adults with Adverse
Childhood Experiences leading to Education and Leadership

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Abstract

Research has revealed that recovery from traumatic events may be fleeting; its impacts lifelong. Developing resilience is not necessarily universal, nor is incorporating protective factors that researchers believe can help provide beneficial effects (Rutter, 1987). The material collected for this research over the course of the past decade started with more than 100 inquiries of women in various capacities of leadership – public, private, entrepreneurial, and non-profit. These inquiries lead to a series of more than 30 interviews, which formed the basis of this ongoing research representing various ages, backgrounds, races, and ethnicities. Women were the focus of the initial research as they continue to be underrepresented in most facets of leadership in America. There is no doubt evidence of suffering in these stories. But the charge here was not to expose upstream causes, lay blame or uncover ultimate solutions. That challenge is left to other discerning investigators. Instead, a case study approach was used to focus on three of the stories that offer an eye into the world of those who've been both devastated and uplifted, who've found a way through the morass. Because the painful passages started in childhood, the women asked to remain anonymous; thus, names and identifiers like places and locations have been changed. All names are pseudonyms and locations, and scenarios have in some cases been generalized or altered. The stories however are based on true events, The development of protective factors and opportunities throughout young lives appear to be a key to building resilience when faced with trauma and adversity. The women's stories summarized here accomplished this in part through education and leadership. For the women in this limited case study, they chose to “feed” a spirit of resilience while still considering their circumstances. Rather than focus on the negative –

what's broken, in need of fixing or in disrepair – these women took the opposite approach, centering on the choice made to face down the adversity in their early lives, setting forth a path to resilience, an acceptance of their brokenness, the attainment of education, and the development of durable leadership skills.

Keywords: Resilience, Adverse Childhood Experiences, Protective Factors.

Bound by Brokenness: Case Study Narratives from Resilient Adults with Adverse Childhood Experiences leading to Education and Leadership

Overview

One could argue that suffering is part of the human condition. We all suffer at some time in our lives, but the extent and the degree vary considerably. A failed job, a broken relationship, a serious illness, a lost loved one – these experiences many share. No matter when the suffering occurs or what form surfaces, the internal pain that comes with it can knock us down as cruelly as any physical blow, disturbing our balance and shaking our souls. Feelings of unfairness, injustice, and inequity may blister inside, while the world asks for another ordinary day, clueless of the catastrophe erupting.

Research has revealed that recovery from traumatic events may be fleeting; its impacts lifelong. Developing resilience is not necessarily universal, nor is incorporating protective factors that researchers believe can help supply beneficial effects (Rutter, 1987). Debate over whether nature or nurture hold the key to building resilience has yet to be resolved (Wu, Feder, Cohen, et al, 2013). Thus, a person's ability to cope with stress and adversity (Anthony & Koupernik, 1974) may most often come from a combination of factors leading to a process learned, not inevitably a trait inherited.

According to the American Psychological Association, many U.S. children – as many as two out of every three -- reveal that by age 16 at least one traumatic event has happened in their young lives (APA, 2008). These are wide-ranging and can include several types of emotional, physical, and sexual abuse; domestic, community and school violence; bullying; medical trauma; poverty and neglect; the impact of addiction, jail, or prison; motor vehicle accidents; acts of terrorism; war experiences; natural and human-made disasters; suicides; and other losses.

Reactions to this suffering, as one might expect, are influenced by many factors – one’s developmental level, culture and ethnicity, earlier traumatic experiences, resources or lack of help, mental health, and other family or personal challenges.

Suffice it to say, no matter the background or context, no one is completely unscathed by trauma. Those who appear to get past these events are often represented as having built “resilience” defined broadly as having good outcomes and recovery regardless of risk factors. In addition, resilience can also be viewed as showing a form of competence when stressed, having the ability to make future hardships less traumatic by learning from past challenges (Masten, 2001). Conversely, traumatic events can also affect one’s beliefs about the future, foreshadowing a potential lack of hope, a feeling of despair that life may end suddenly, or a resignation that dreams may be elusive, for others only.

Detractors argue that promoting the development of resilience draws attention away from collective responsibility, laying the self-efficacy burden squarely on an individual’s shoulders rather than on a dysfunctional institution, society or individual. This approach, some contend, excuses others from addressing societal ills, building institutional accountability, or developing cooperative solutions to undo what may have initially contributed to and in some cases caused the suffering in the first place.

The material collected for this research over the course of the past decade started with more than 100 inquiries of women in various capacities of leadership – public, private, entrepreneurial, and non-profit. These inquiries lead to a series of more than 30 interviews, which formed the basis of this ongoing research. representing various ages, backgrounds, races, and ethnicities. Women were the focus of the initial research as they continue to be underrepresented in most facets of leadership in America.

There is no doubt evidence of suffering in these stories. But the charge here was not to expose upstream causes, lay blame or uncover ultimate solutions. That challenge is left to other discerning investigators. Instead, a case study approach was used to focus on three of the stories that offer an eye into the world of those who've been both devastated and uplifted, who've found a way through the morass. Because the painful passages started in childhood, the women asked to remain anonymous; thus, names and identifiers like places and locations have been changed. All names are pseudonyms and locations, and scenarios have in some cases been generalized or altered. The stories however are based on true events, told in some cases through the participant's own words. Sharing these stories – both personal and painful -- was the participants' aim, in the hopes of helping others forge their own paths to resilience and leadership. In the words of one: "I've lived in the dark, I've faced the destructive forces of the dark and I've found if you turn to the light, it's there." For those "bound by brokenness," hope can present itself in the tiniest of embers.

Background

Like human fingerprints, no two childhoods are exactly alike. In the same family unit, children may encounter different experiences, see, and interpret circumstances in their own ways, and develop behaviors, personalities, and ways of being unique only to them. Research has shown even identical twins growing up in the same family develop differently.

Given these distinctives, attempting to reach consensus on what makes an "ideal childhood" may be a futile exercise. There is no shortage of theories and research studies on how child development takes place -- Freud's psychoanalytic concepts (Freud, 2012) Piaget's "how we come to know," cognitive development phases (Inhelder & Piaget, 1969), Vygotsky's

sociocultural frame (Vygotsky, 1986), Bowlby's attachment theory (Bretherton, 1992) and Bandura's self-efficacy model (Bandura, 2010) are just a few of the most well-known. But when asking people on the street what makes for happy childhood simpler words come to mind like "wanted and loved," "joy of living," "endlessly creative," and "silly, fun and free."

Given these views, the term "adversity in childhood" may seem like an oxymoron, a contradiction out of place with the idyllic imagery many associate with growing up. But for hundreds of thousands of children, it is no twist of fate; to the contrary, adversity has become the centerpiece of their everyday lives.

Before 1995, little was known about the impact childhood adversity played in a person's life. A landmark study conducted by the Centers for Disease Control and Prevention (CDC) and Kaiser Permanente transformed this initial lack of understanding. The CDC-Kaiser Permanente Adverse Childhood Experiences (ACE) Study became one of the largest investigations ever of the relationship between childhood abuse, neglect and other adversities and health and wellbeing (American Journal of Preventative Medicine, 2021). It is worth noting that although the study involved thousands of individuals, the levels of representation relating to the overall U.S. population did not necessarily align with marginalized groups.

The ACE Study measured ten types of childhood trauma – five that are personal — physical abuse, verbal abuse, sexual abuse, physical neglect, and emotional neglect – and five related to occurrences observed in the home -- alcoholism or drug abuse, domestic violence, jailing of family members, mental illness, and losing a parent to divorce, death or abandonment. One of the major conclusions the study uncovered was a stunning connection between childhood trauma, chronic disease and the potential for social and emotional problems developing later in life (Mental Health Coalition Verde Valley, 2021). This includes heart disease, lung cancer,

diabetes, and many autoimmune diseases, as well as depression, violence, being a victim of violence, and suicide.

Study findings repeatedly revealed a relationship between ACEs and negative health outcomes.

Researchers also found ACEs commonplace, with most of the study participants, almost two-thirds, reporting at least one ACE. They also found that the higher the number of identifiable ACEs evident in the individuals' backgrounds the more likely they would experience traumatic brain injury or other serious injuries, depression, anxiety, suicidal tendencies, PTSD, unintended pregnancy, HIV, Cancer, Diabetes, and the proclivity to abuse drugs and alcohol among other health issues. Opportunities for educational advancement, higher occupations, and increasing income also seemed to be impacted (CDC Ace Study, 2021). While this sobering news is helpful for future prevention efforts, it does foretell a gloomy set of health outcomes for those unlucky enough to have endured multiple ACEs in their formative years.

Across the Pacific Ocean, another groundbreaking study was taking place on the Hawaiian island of Kauai. Dr. Emmy E. Werner, a developmental psychologist and professor at the University of California, Davis was conducting a multiple decade's longitudinal study of 698 infants born on the island in 1955, following them through their development at ages 1, 2, 10, 18, and 32 years. The children all had been exposed to perinatal stress, chronic poverty, and a family environment troubled by chronic discord and parental upheaval (Werner, 1993). Among her most significant findings was the fact that one-third of all the high-risk children displayed "resilience" and were able to develop into caring and confident adults, despite their adverse histories. The research identified "protective factors" which helped to balance out the risk factors present at critical periods of their development. These included such influences as a bond with a

nonparental caretaker or caring individual (like a teacher, babysitter, or other mentor figure) and outside involvement in activities like church or community groups, among other factors.

Despite Werner's work, there has been a perpetuation of myths and misconceptions about resilience for decades, with some seeing the phenomenon through a deficit or glass "half-empty" paradigm. In contrast, Werner, and Smith (1992) explain, "[Resilience studies] provide us with a corrective lens — an awareness of the self-righting tendencies that move children toward normal adult development under all but the most persistent adverse circumstances" (p. 202). Ann Masten, a professor of child development and resilience researcher added, "Resilience does not come from rare and special qualities, but from the everyday magic of ordinary, normative human resources in the minds, brains, and bodies of children, in their families and relationships, and in their communities" (Masten, 2001, p. 9). The development of protective factors and opportunities throughout young lives appear to be a key to building resilience when faced with trauma and adversity. The women's stories summarized here accomplished this in part through education and leadership.

Case 1: Winnet

Winnet's life on her family's farm could hardly be regarded as idyllic. The serene beauty of the Northeastern part of the United States in the mid-1900s – an area so rich with rivers, streams, and creeks that harvests were assured to be abundant – escaped the family's grasp. By her estimation there had been more than 1,000 family farms in the area she called home in the 1950s; by the 1960s there were less than 100. In fact, according to the U.S. Department of Commerce, between 1950 and 1970, the number of family farms plummeted, cut roughly in half across the country until finally the numbers remaining began to level off (Ferdman, 2014).

Winnet's father did not accept that the economic climate for family farming was in decline. He vowed to take the lessons he learned through the cooperative extension service and apply his college degree to save the family's 5th generation enterprise.

That enterprise was collapsing before Winnet and her five siblings' eyes. Home consisted of a ramshackle dwelling, neglected and shabby, overflowing with cast-off items, discarded by those who poverty bypassed. While some families in the early 1960s were experiencing a budding new life in the suburbs, Winnet's prospects withered. Running water couldn't be counted on; an outhouse served as the bathroom, and then illness struck.

"My mother had a bout of meningitis. My sense was – I was about 5 or 6 so I don't really remember her before – but my father said she changed drastically at that point," she explained. That change took the form of a cold distant mother, absent emotionally but present physically at the farmhouse. The situation became even more unbearable after a house fire killed one of her brothers, a life smothered in the choking blaze. At that point, Winnet's mother -- who had earned a public health degree she was not using – became a desperate, lonely, isolated escapist, buried in detective novels.

An escape was what Winnet was looking for as well, but not through the pages of fiction. She longed to leave for college, not recognizing at the time she could be trading one set of inequities for another. As Winnet's mom became more distant and depressed, poverty seemed to engulf their farmhouse. Walls, ceilings, and floors began to decay, producing dangerously exposed wiring, which helped feed the devastating house fire that claimed her brother. Windows broken by accident or faulty installation were haphazardly boarded, sanctioning the outside chill inside with little but a flapping curtain providing a sloppy obstruction. The complexity of the pain going on in the household gripped the family, and poverty took center stage.

As she looks back, it is difficult to explain the intersections of poverty. Both parents had college degrees. Despite her mother's despair, she had committed 100% to be a stay-at-home mom to be there for her children. And in terms of goals – both parents supported all six of them, offering encouragement for whatever educational pursuits they were dreaming about. Winnett did well in the academics of school as did her sibling before her. As she continued to excel in her studies, she would daydream about being able to go to college. “I couldn't wait to escape. I had a lot of motivation,” she explained. Yet with siblings left behind she could never truly just disappear and say, “I'm not ever coming home.” So, every time she came back “it was so painful” with some new catastrophe awaiting, being thrust back into that existence repeatedly. Despite these factors, she was able to attend colleges with superior academic reputations and highly selective admissions standards.

Whether it was one year after she left or five years, every time Winnet came back home it was the same -- agonizing. “The things I've gone through – totally changed me. I'm sure the things that I value are because of the pain. I think the pain should more than be affirmation. The embarrassment, the shame of my childhood poverty makes me absolutely committed to poverty and first-generation kids. This was an area – working with those with socio-economic struggles – that became a professional passion.

Case 2: Tera

Tera's earliest memories were of marginalization and exclusion. Growing up African American in the southern U.S. in the 1940s, she interpreted the messages society at was sending her as a clarion call, that if she was to pursue a career at all it would either be as a teacher or a preacher, roles befitting and limiting a young woman of her race, as society dictated at that

time. Leading or leadership was out of the question. Even in the familiarity and comfort of her local Southern Baptist church, where many of her relatives were pastors or ministers, she encountered limitations. Women were not allowed at the time to speak from the pulpit, and if they spoke it was confined to certain areas of the church that had to do with nurturing and community. Tera recollected if they had any form or a formal title at all it would be missionary, “mother of the church,” or Sunday school teacher.

She may have felt compelled to follow this predestined narrative had it not been for a little mercantile being operated nearby. Her great grandmother owned the business and operated the marketplace with a level of business savvy that earned her respect from all who entered. Businesses ownership by African American women at this time in the U.S. history was exceedingly rare as reports at the time cited 60 percent of the employed black women in the 1940s were working not as business owners or even managers, but as domestic servants to other families.

That inspiration helped teach Tera to ignore the marginalized storyline repeating all around her, but it also brought her face-to-face with cruel realities. “Jim Crow” laws were in full force, and these statutes and ordinances to separate the white and black races tendered legal punishments for violations. Public facilities were required to have separate water fountains, toilets, and distinct areas on public transportation, like trains and buses. These legal requirements included forcing African Americans to “attend separate schools and churches, use public bathrooms marked “for colored only, eat in a separate section of a restaurant, and sit in the rear of a bus” (Jim Crow Laws, 2021). Punishment for these violations varied – African Americans risked their homes, their jobs, even their lives, as beatings, lynchings and other violence was also instrumental for enforcement. Seeing her great grandmother navigate in this

environment gave Tera the confidence to take on the establishment as well. The results for her were not the same. When she boldly decided to violate a Jim Crow law and went into a “Whites Only” bathroom, she was confronted with harsh punishment, which typically involved beating and other physical violence. As she recalled it, rather than relegating her to passivity or withdrawal, the trauma moved her to action. It would take the life-threatening experience close to home to strengthen her resolve, and she later sought various forms of leadership as an adult.

Case 3: Pilar

The iconic Mamas and Pappas song “California Dreamin’” promise in its lyrics, “I’d be safe and warm, if I was in L.A.” While the Southern California sunshine can be counted on more than 75% of the time in any given year that fact did little to comfort young Pilar whose young life was more akin to the Santa Ana “devil winds” than a warm LA hug. The Santa Anas often announce California’s hot, dry weather in the fall, but their unpredictability – and at times invisibility -- before reaching a destructive apogee, have earned the weather event its moniker. Pilar described her early days in similar terms: “on the outside, I looked like I was fine,” but behind that façade belied a scorching reality.

Leadership was not a word Pilar can remember ever connecting with women in Southern California in the 1960s. While poverty plagued her family, Los Angeles’ “Miracle Mile” bustled, ignoring the struggles she and her five siblings encountered. The manicured thoroughway dotted with palm trees; a 1.5-mile section of Wilshire Boulevard dubbed the “Champs-Elysees of America,” was at the time a buzzing business and retail hub. In Orange County, Holiday Inn of America proudly displayed a silver star over its green and yellow

marker and nearby Imperial Car Wash topped that with a crown on its marquee, advertising a royal car treatment was to be had for a payment of only 99 cents.

Ninety-nine cents seemed like a lot of money to Pilar back then. “We were pretty poor, and I thought that was all there was,” she explained. In contrast, children of U.S. middle class or affluent households in Southern California and elsewhere were experiencing the “the golden age” of toy manufacturing currently. U.S. children who shared common play experiences may have created a ball while blowing up their “super elastic bubble plastic,” pulled the string on their “Chatty Cathy” doll to hear “Let’s play school,” formed plastic bugs from the “creepy crawlers thing-maker,” or lined up *Action Soldier*, *Action Marine* or *Action Pilot* from their G.I. Joe® figures.

Rather than carefree play days, Pilar spent more of her time becoming a caretaker of her younger siblings. When she turned 6 years old, life began to change. Pilar’s biological dad suddenly disappeared, vanishing so completely she remembered thinking he had died. Death had not taken him; he had faded instead into the drug underworld. The United States experienced a spike in recreational drug use by the late 1960s, prompting a flurry of activity by the federal government including the founding by the Johnson Administration of the Bureau of Narcotics and Dangerous Drugs (BNDD), an early predecessor of the federal Drug Enforcement Administration (DEA). Despite the potential dangers, Pilar’s father had been cashing in since her birth, by importing drugs from Mexico.

Pilar recollected flashes of memory from these elementary school days, which included terrifying images for a young child -- watching her biological father taken away multiple times by police, and then visiting him in prison in Mexico. Contact with him became even less frequent as his crimes prohibited his travel back across the border. Seeing him meant her and

her four siblings traveling with their mother to Mexico, which dwindled to less and less contact. For a child, “it was really, really intense stuff,” Pilar said. “I experienced abandonment in a lot of different ways.” Through the care and concern of teachers, and the encouragement to earn college degrees, she sought leadership positions as a young professional.

Conclusion

While the women in all three cases were bound by brokenness, they also shared a resilience that helped them pursue education and career goals that initially they never dreamed possible. What was revealed in the coding and comparing of the women’s stories were four common elements:

- *Education and Guidance.* In all three cases, the women were able to seek some form of knowledge-building, learning, leadership direction, counseling, therapy, advising, and acquiring of new skills.
- *Champions.* This was another essential element that helped to move the children, teens, and young women to resilient positions, as champions came forward -- reflecting a wide variety of supporters who played the role as defender, backer and sometimes advocate for the participants.
- *Hurdles.* Overcoming barriers and obstacles also helped the women build an inner strength. They saw clearing these hurdles as achieving victories over “jeopardizing influencers” including adversity and aggression, discrimination and poverty and found a way to rejoice in accomplishments.
- *“Outlook of Self.”* This was a critical piece of the puzzle in moving past the adverse circumstances. Through the other three factors, the women in this case study

acknowledged they were able to begin to recognize their own worth, appreciate their uniqueness, and ultimately take control of their own matters, using positive emotions and attitudes to reframe and move forward.

Well-documented research in building resilience can be associated with the fact that these women experiencing ACEs may also be building psychological resilience. P All tested positively on the PsyCap scale in resistance (Luthans, 2007). It was not clear from research done to date however whether all adults who experienced ACEs would also develop resilience. More study is needed to further define this possibility.

For the women in this limited case study, they chose to “feed” a spirit of resilience while still considering their circumstances. Rather than focus on the negative – what’s broken, in need of fixing or in disrepair – these women took the opposite approach, centering on the choice made to face down the adversity in their early lives, setting forth a path to resilience, an acceptance of their brokenness, the attainment of education, and the development of durable leadership skills.

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Strengthening Pre-Service Teachers' Practices Through Embedded Experiential Learning

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Abstract

The ability for teachers to apply content knowledge and pedagogy is imperative to effectively teach increasingly diverse student populations. Experiential education (EE) is an approach to provide pre-service teacher candidates (TCs) with opportunities to develop instructional practices and cultivate professional dispositions that in turn will prepare them to effectively teach students. This paper shares the experiences of TCs completing an Assessment of Literacy course that included an embedded field experience in an elementary school. The study examined the impact of the experience on the TCs' perceptions of their literacy practices and professional dispositions. **Methodology:** This study is grounded in literature on effective literacy instruction, Kolb's experiential learning theory, and social justice theory. A qualitative framework was used to collect and analyze data from group interviews, reflection discussion boards, and surveys. **Findings/Conclusions:** This study found that the experiential experience impacted the perceptions of participants to (a) develop an understanding of the cultural and diverse needs of learners; (b) utilize data to provide appropriate learning experiences for students; (c) increase confidence in planning and implementing literacy instruction; and (d) develop commitment to advocate for learners. **Implications:** This study shows how experiential experiences can provide authentic content and pedagogy applications for preservice teachers. Understanding how experiential experiences impact pre-service teachers' instructional practices and development of professional dispositions has the potential to inform the design of teacher education programs.

Key words: pre-service teachers, teacher candidates (TCs), teacher education, experiential education, literacy instruction, social justice

Strengthening Pre-Service Teachers' Practices Through Embedded Experiential Learning

Education preparation programs (EPPs) face the challenge of ensuring pre-service teacher candidates (TCs) develop the right skills to support the diverse student populations they are likely to encounter in the classroom. A culturally responsive, social justice, perspective in teacher education programs focuses attention on preparing TCs to support the learning of all students, and that teaching and learning should be based on the cultural assets students bring into the classroom (Gordon & Espinoza, 2020).

The rationale for EPPs to teach TCs strategies to address inclusion and diversity is supported by national statistics. The number of K-12 students in the United States entitled to free or reduced meals was over 52% according to federal statistics released in 2019 (Lieberman, 2021). The stress from poverty is known to impact the development of children and have adverse effect on their learning (Taylor, 2017). The number of students in K-12 who are English language learners (ELLs) continues to increase growing from approximately 9.2% of all students, 4.5 million in 2010, to 10.2% of all students, 5.0 million in 2018 according to the National Center for Educational Statistics (2021). TCs need opportunities to develop the skill set to work with diverse learners. A strategy to provide hands-on application of what TCs learn in the classroom is to embed additional clinical experiences in education courses beyond the required field experiences. This helps the TCs assimilate theory and practice learned in the seminar part of the class by allowing them to try out information in authentic situations with real students.

This case study investigates the experiential lessons learned in a literacy assessment course which is a required course all TCs complete as part of their licensure program. This course is the last of four literacy courses TCs take in either their junior or senior year and is

aligned to the Knowledge, Performance and Dispositions of the EPP learner outcomes. Most candidates have previously completed their first two field experiences prior to taking the assessment course. Generally, they are scheduled to complete their final full time direct teaching field experience the semester after taking this assessment course. Therefore, this experiential experience provides candidates an additional opportunity to refine instructional practices prior to their final field experience.

For this study's purpose, the professor partnered with a Title I elementary school located close to the college. The school has been given a pseudonym, High Point Elementary, for the sake of this article. The school is in an urban area in central South Carolina and as of 2019 reported a 99% poverty index. The school serves approximately 400 students in prekindergarten through fifth grade, with a student population comprised of 94.2% African American, 1.2% White and 4.6% identified as others. The school also experiences a high rate of transiency with 25% of students often moving in and out of the attendance zone several times within their elementary years. Additionally, the attendance rate for students in 2018 was 95.4%.

The assessment course met twice a week for a total of four hours a week over a fifteen-week semester and was housed at High Point Elementary. Each class period was broken into a seminar for the first 50 minutes where TCs and the professor would explore literacy assessment content and strategies. TCs spent the remaining hour in an assigned elementary classroom helping the teacher and working with students. The time coincided with the ELA time block giving TCs the opportunity to help teach literacy and gain practical experience in implementing strategies discussed during the course seminars. TCs completed a case study project during the course where they selected two students to implement Jennifer Serravallo's Assessment Cycle as described in her Literacy Teacher's Playbook (2013).

A qualitative single site case study was conducted with the following research question to study the impact of this experience: How do TCs perceive their experiential learning affect their literacy practices and professional attitudes?

Literature Review

Education preparation programs (EPPs) are compelled to provide preservice teacher candidates (TCs) with the training so they can handle increasingly challenging classrooms (Darling-Hammond & Bransford, 2007). Clinical experiences play a critical role in developing teacher competency and identity in TCs (Franklin Torrez & Krebs, 2012). One strategy EPPs use is to provide TCs with additional clinical experience beyond dedicated field experiences by embedding experiential experiences within other education courses.

Experience learning is based on the ideas of constructivist theorists such as John Dewey (1938), who equated learning with education as a social, reflective process and called for deliberately built experiences to influence learning skills. The term “experiential learning” is generally believed to originate from Dewey (Tinkler et al., 2019). Dewey emphasizes learning by doing and argues that classroom lectures are not always the best way to help students learn knowledge in depth.

Kolb's (1984) experiential learning model is universally adopted by experiential educators across disciplines. There are four key components in Kolb's model: concrete experiences, reflective observations, formation of the concept, and active experimentation (1984). The experiential learning model begins with concrete learning activities centered around a concept. Students develop an understanding of the concept through observation and reflection on the learning activities. Students are more likely to apply what they learn through experiential activities once they have developed confidence in their ability to make connections around those

concepts in the real world (Kuo et al., 2020). Experience experiences through concrete experiences and reflective observations help students understand and apply concepts (Kuo et al., 2020),

Paulo Freire (1970) described a “problem-posing” method of teaching focused on critical thinking that challenged learners to examine power structures and patterns of inequality within the status quo for the purpose of liberation. He advocated a critical pedagogy in which the individual learns to develop his own growth through everyday life situations that provide useful learning experiences. Freire (1998) believed that adult literacy develops through active and authentic dialogue between teachers and students. Freire (1998) suggested that this dialogue not only promotes the acquisition of literacy skills but also allows individuals to look critically at the world and helps open their ideas of having the right as people to change reality.

Thus, experience education through its application to the real world has the potential of helping individuals gain awareness of social justice issues. Bennis (2004) suggested that a person views the world through their own individual cultural lens that develops through experiences with family, community, and the media. Walker et al. (2021) hypothesized that when the cultural lens “are tainted by bias, prejudice, and even stereotyping it creates barriers making it difficult to appreciate and understand different cultural and racial groups” (p. 73). Therefore, providing college students with experiential learning experiences can help them shift to new ways of thinking relating to cultural and diversity issues (Walker et al., 2021).

Experiential education is utilized in various disciplines as a strategy to engage learners and promote the acquisition of knowledge and skills through hands-on experiences. Throughout the experience the learner is engaged in inquiry-based learning that involves the learner posing questions, investigating, experimenting, being curious, solving problems, assuming

responsibility, being creative, and constructing meaning (Association of Experiential Education, 2021). Characteristics of experiential learning includes solving real life problems, hands-on and inquiry-based learning, and collaboration with others,

Furthermore, experiential learning is personal to the learner and can impact future experiences and learning. The experience provides opportunities for the learner to connect to his own ideas and values and those of others. The experience can help the learner examine “Relationships are developed and nurtured: learner to self, learner to others and learner to the world at large” (Association of Experiential Education, 2021). “Educators strive to be aware of their biases, judgments and pre-conceptions, and how these influence the learner” (Association of Experiential Education, 2021).

Experiential education is “challenge and experience followed by reflection leading to learning and growth (Association of Experiential Education, 2021). The reflective thinking experiential education encourages allows the participants to consider other perspectives when problem solving, increases the application of new understandings to situations, and serves as a link between theory and practice (Dufour, 2004; LeBlanc, 2013). Darling-Hammond and Branford (2007) suggest that new teachers need skills to apply the knowledge from teacher preparation programs relating to a range of responsibilities including teaching diverse students, classroom management, and assessing student performance. Opportunities to apply knowledge in experiential learning experiences is one strategy to help pre-service teachers develop these skills.

Methods

Purpose

The primary purpose of this qualitative research study was to answer the question, “How do TCs perceive their experiential learning affect their literacy practices and professional

dispositions?” Using a qualitative research approach, the beliefs of TCs was investigated to examine how experiential learning affected their perceptions of their literacy practices and professional dispositions (Stake, 2010). The participants of this single case study were teacher candidates completing a literacy assessment course that included an embedded clinical experience. The case study allowed the researcher to study how the experience impacted the development of the professional dispositions of TCs. Three data sources were used, including group interviews with TCs, an analysis of reflective writing TCs and the anecdotal responses of TCs to a survey they completed at the end of the course.

Participants

This study took place at private liberal arts college in the southeastern United States. Students enrolled in the literacy assessment course as part of their major, as it is required for all TCs enrolled in education licensure programs, including the early childhood education, elementary education, middle level education, and special education programs. The course is the last of a series of four literacy courses TCs must complete as part of their licensure program. The course is typically completed in the semester prior to TCs participating in their full-time direct teaching field experience.

A total of 18 students enrolled in the course in the Fall of 2019. All 18 students were female. Four students were classified as juniors and 12 students were completing their senior year at the college. Enrollment by ethnicity was 50% White, non-Hispanic; 39% Black or African American, non-Hispanic; and 11% Hispanic.

Data Collection and Analysis

Data collection consisted of an analysis of reflective discussion boards written by the TCs, semi-structured group interviews of the TCs, and anecdotal responses by the TCs of a survey completed at the end of the course. The semi-structured group interviews were conducted during the course seminars using open ended questions. Some of the questions discussed during the group interviews and survey included: What have you learned from your experience at High Point Elementary? How has this experience impacted you as a teacher? What challenges and successes have you experienced from this project? What would you change about this experience? Why? These conversations were audio recorded and transcribed. The data including the reflective discussion boards, semi-structured interview groups, and anecdotal responses were coded to find common themes.

Qualitative designed studies have inherent limitations including narrow generalization because of the small sampling size (Glesne, 2014, Maxwell, 2012). This study is limited to the experience of 18 TCs during one semester. The data collection and interpretative methods in a case study contain aspects that may be considered subjective (Glesne, 2014, Maxwell, 2012). The reflective discussion boards, semi-structured interviews, and survey questions were conducted, recorded, transcribed and analyzed by a single researcher. Therefore, the possibility of researcher error or bias was present in this study. The researcher used strategies to reduce error and bias including triangulation of data, participant proofing of transcripts, and consultation with colleagues (Glesne, 2014, Maxwell, 2012). Consequently, while any findings of this study cannot necessarily be generalized to all groups of educators; hopefully, this project will provide insight into possible applications to other education preparation programs.

Results

The findings show four major themes related to the reflections of the TCs taking part in the study as follows: (a) understand the cultural and diverse needs of learners, (b) use data to provide appropriate learning experiences for students, (c) increase confidence in planning and implementing literacy instruction, and (d) develop commitment to advocate for learners.

Understand the cultural and diverse needs of learners

A recurring topic that appeared in teacher candidate's comments was related to how the experiential project provided them with learning experiences and interactions that added to their appreciation and understanding of diversity. TCs noted the wide range of abilities and needs within the classrooms and reflected on how they would address these challenges:

As a student teacher I learned that it is important to get to know your students and their strengths and weaknesses before teaching them a skill. We want to ensure it is [the] best technique to help them reach whatever learning goal they have.

There are many students in my class at High Point that are on a K-1 grade reading level and there are some that are on a 3rd-4th grade reading level. This really shows how we need to be aware of where our students are so that we teach them how they need to be taught.

High Point has given me an insight of different backgrounds and cultures with students, it has taught me different skills that I can use in my future classroom when it comes to behavior management skills. I also believe it gave me more patience.

I learned that one size doesn't fit all. Students need all of their needs to be met, in order for them to be focused in school. I definitely think representation matters as a black female and students of color need to see black educators who can relate to them.

A teacher candidate shared that coming into the project she had preconceived ideas about how she would handle diversity. But as the semester progressed, she realized that creating an inclusive class meant adapting to the diverse needs of her students:

As teachers, we should change our way of thinking. Instead of expecting the child to change to fit into our classrooms, we should make changes to meet our students where they are. We should strive to provide an inclusive classroom that fuels and ongoing process of creating more meaningful and authentic social and emotional connections.

TCs have become aware of the school constraints that have countered the needs of students in need of alternative resources. For instance, one student noted the lack of appropriate literacy resource to support English language learners:

To begin, one of our main concerns is how we can effectively teach literacy to our English language learners. I have seen numerous students whose primary language is not English have problems when it comes to reading and writing. In so many of these cases, I see these children do alternative assignments such as studying their alphabets, iPad activities, etc. while students whose primary language is English do assignments aligned with the standards and objectives. To me, having these alternative assignments does not help as our ELL students as they are still going to be behind and not learn those techniques and rules needed to build a firm foundation in literacy. I believe professional development opportunities such as seminars, conferences, one on one opportunities will allow us as teachers to see how we can eliminate this problem and find use of the best practices that will help our ELL students in literacy.

Other TCs noted the challenge that teachers have in accurately identifying students' reading levels and thus providing appropriate resources and teaching:

During my time in the classroom, I have seen the problems that teachers face identifying a child's reading level and ability, which translates into problems identifying what books they should be reading. This has resulted in a lack of instruction, a problem of overrepresentation of disabilities, and children falling way behind their grade level.

Use data to provide appropriate learning experiences for students

The second theme illustrated how TCs associated the use of data to develop appropriate learning experiences for students. Throughout the semester the TCs had opportunities to apply the assessment strategies they learned about in the seminar portion of the course by trying these out with students in the classroom. One teacher candidate shared her surprise in discovering the range of reading levels of students within the same classroom:

I've learned that you can have two different students in the same grade on completely different reading levels. One of my students that I am working with is on a 4th grade reading level, while the other is reading at a 1st grade reading level. In knowing this, you learn to change the way you teach material and understand the importance of providing multiple strategies for each student so that you're helping those that are struggling and enriching those who need more help.

Another teacher candidate reflected on how the various assessment tools such as interest inventories and student conferencing interviews provided valuable data that helped her develop learning goals and instructional strategies:

As a student teacher I learned that it is important to get to know your student and their strengths and weaknesses before teaching them a skill. Collecting the different artifacts such as the interest inventory and interviewing students really helped me get to know them. After all, we want to ensure we use the best technique to help them reach whatever learning goal they have.

Within this experience, I have a deeper understanding of why literacy is so important. Through my observations and interactions with my students, I see how so many of our literacy elements connect with one another. It is important that our students know the fundamentals of literacy so that they can continue to grow and build upon the knowledge that is previously instilled in them.

Some TCs shared what they saw as missed opportunities within the school to use data effectively. Some classroom teachers were perceived by the TCs to administer assessments, yet the teachers did not use the information the assessments provided to inform their instructional decisions. These candidates reflected on how they thought these teachers could better use data to help their students:

We keep talking in class about how we need to use data to plan instruction to make sure we are meeting the needs of students. My teacher spends so much time giving assessments to the students but it doesn't seem like she really uses the tests to plan lessons.

Increase confidence in planning and implementing literacy instruction

The third theme related to how the TCs perceived the experience affected their ability to plan and implement literacy instruction. Overall, most TCs reported that they felt more confident in administering different literacy assessments and using that information to plan effective instruction. Examples of their reflections relating to planning and implementing instruction include the following:

I really enjoyed working with the students at High Point it gave me the hands-on experience that I feel will be necessary when I become a teacher. Seeing the things that we have discussed in class first hand has also been a great learning experience for me. This experience also helped me gain the confidence I think I needed to pursue becoming a teacher one day.

Furthermore, TCs shared that this experience validated for them the importance of planning and considering the individual needs of their students:

Getting practice as to how to administer a running record and the other assessments that we have used helped me to realize the teacher I want to be. It showed me how capable I

can adapt to my students' needs, and showed me how crucial planning is to the success of my lessons and my students. Even though I may not have seen the best example of a classroom, I learned more than I ever could have and built up a ton of confidence in myself as a teacher.

What I learned about myself as a teacher from this experience is that it is actually easier than I thought to target one student for a strategy, but teach the strategy to more than just that one student. It has also taught me the importance of finding a balance between all students and their needs. I believe that having goals for each student individually gives them motivation to improve.

TCs also recognized that some instructional strategies will not be successful for student learning and that they will have to try alternative strategies as seen in the following excerpt from a reflective discussion board.

As a future educator I felt that this experience was great because the first strategy is not always going to work on the students. It taught me to go back and try again. This is something I knew may need to be done but had not had the pleasure of doing myself. In my future classroom this will be a great skill to have to be able to help all of my students in the way they need.

The preceding anecdote reinforced how the TCs felt the experience provided them with an opportunity to gain confidence in their planning and instructional delivery. Furthermore, TCs reflected on the importance of perseverance and using the assessment cycle to continuously evaluate student progress.

Develop commitment to advocate for learners

The fourth theme reflected the TCs' commitment to students as seen through their comments relating to caring about students, and understanding the challenges students of poverty encounter within the school setting.

From this experience, I learned that I have a passion for working with students who need some extra love and attention. I think all students need a teacher who genuinely cares about them and their success, but being at High Point has opened my eyes to a demographic of students that I feel drawn to, and I feel like I have the compassion, patience and knowledge to help these students to succeed.

TCs expressed concern and the desire to advocate for these students through the ideas they shared in the interviews and reflective discussion boards.

This was quite a learning experience for me. I had never worked or stepped foot in a Title I school and therefore, did not know what to expect in the beginning. I believe I had some biased opinions or allowed others' comments to influence my thoughts of what this field experience would be. It turned out to be rewarding and enlightening. While I learned socioeconomic status does unfortunately play a role in student academic success and skill level, it does not mean they cannot, will not, or do not learn. The power and promise rests in the hands and efforts of the teachers.

This was also a very eye-opening experience because I had not been around a poverty level so high and it changed how I view different issues like homelessness and lack of resources. I realized that there are people in need and they have no way to get the kind of help they need. These kids go to school and that is the only time they eat or have heat or air. Many of these kids just need to be acknowledged and feel important. Overall, I enjoyed the experience even on the crazy days!

One thing that I think could be very helpful for ensuring that our ESOL students are receiving the support they need, is to have regular staff meetings that focus on ESOL students' needs in the classroom. These meetings should not only provide teachers with resources and activities for ESOL students, but they should provide teachers with support and should be a time when teachers can get answers to questions that they have about their ESOL students. Teachers should work towards making sure their administration is aware of their concerns and goals and make sure they are on their side!

Discussion

The purpose of this study was to examine how an embedded experiential experience in a required literacy course for TCs can be used to develop their literacy practices and professional dispositions.

Understand the cultural and diverse needs of learners

The TCs in this class perceived this experiential experience as an opportunity to gain understanding of the cultural needs of learners within a high poverty elementary school. In their reflections the TCs repeatedly report on how they had misconceptions about Title I schools and children of poverty. They expressed surprise at the range of abilities and different learning styles they found in the classrooms, yet they communicated ideas related to how they would address

these challenges in their future classrooms in positive and proactive approaches. Many of the TCs expressed having preconceived ideas about children of poverty and how they had to come to terms with those preconceptions and the realization that the TCs needed to adapt to the needs of their students. They also communicated some realistic expectations that they would need to prepare to adapt not only to the needs of their diverse students but also to the demands and constraints a school district system might compel them to follow.

Use data to provide appropriate learning experiences for students

The experience seemed to help candidates appreciate the role data has in helping understand the diverse needs of learners. The TCs had the opportunity to experiment with administering several types of assessments and overall, they recognized that this data helped them understand the fundamentals of literacy instruction and how to individualize instruction to target specific literacy skills for students.

TCs also recognized the challenges associated with data collection. Sometimes the students were absent during a class and a TC had difficulty accessing the student to administer an assessment. Other times events at the school such as field trips or scheduled district assessments interfered with the TC's plans to work with students. Also, some TCs observed how some cooperating teachers struggled with balancing administering assessments within time restraints and then using the data to inform instruction. TCs synthesized these variables and reflected how they would address these opportunities and challenges in their future classrooms.

Increase confidence in planning and implementing literacy instruction

Overall, the experience provided the TCs with an opportunity to gain confidence in their planning and instructional delivery. They enjoyed developing relationships with students and felt

like their work in the classroom impacted student learning. The TCs also communicated that the experience reinforced to them the importance of planning instruction while considering the individual needs of their students. They had first-hand experience discovering that strategies they included in their plans were effective for some students, but not for others. TCs reflected on the importance of adapting their teaching to students' needs by being persistent and using the assessment cycle to continuously evaluate student progress.

Develop commitment to advocate for learners

This experience was eye opening for many of the TCs in providing an opportunity for them to examine their ideas related to diversity and inclusion. This was the first experience for some of the TCs of working in an environment with significant student poverty. The TCs reported how they had preconceived ideas related to poverty before the experience and that the experience helped them develop empathy and care for the students they worked with. The TCs recognized the impact a caring and responsive teacher can have on student learning and they communicated specific ideas relating to future endeavors to advocate for their students. These ideas included educating fellow teachers through ongoing professional development, sharing ideas on how to support students with administrators, and seeking ways to procure resources to support the learning of diverse student populations.

Conclusions and Implications for Education Preparation Programs

This case study presented an experiential learning experience for teacher candidates (TCs) who completed a required literacy assessment course as part of their licensure program. This course provided candidates with an additional experiential classroom opportunity to refine

instructional practices prior to their final field experience. The study explored how the TCs perceived the experience impacted their literacy practices and professional attitudes.

Data were collected from reflective discussion boards, semi-structured group interviews, and anecdotal responses to a survey at the completion of the course. An analysis revealed four themes related to the participants' perceptions of the experiential experience as follows: (a) develop an understanding of the cultural and diverse needs of learners, (b) utilize data to provide appropriate learning experiences for students, (c) increase confidence in planning and implementing literacy instruction, and (d) develop commitment to advocate for learners.

This study involved a single site case study, therefore, future studies examining the benefits of experiential learning for pre-service teacher candidates would be helpful to gather additional data and applications for educational preparation programs.

This study shows that experiential experiences included within education courses in addition to field experiences may provide authentic content and pedagogy applications for preservice teachers. Furthermore, these additional experiential experiences can serve to help teacher candidates gain confidence in the development of their instructional practices and professional dispositions. Therefore, including experiential experiences throughout the course work of teacher education programs may be a consideration for educational preparation programs.

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Title

Fostering a Sense of Belonging Through Embracing an Intersectionality Approach

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Abstract

The purpose of the abstract is to highlight the positive contributions associated with helping students at higher institutions to develop a strong sense of belonging. To further embrace a student's sense of belonging, the concept of intersectionality will be explored and how it impacts student experiences. By addressing students' needs through a multifaceted lens associated with identity while seeking to provide a sense of belonging, student affairs professionals could foster a more inclusive college experience for all students.

Proceedings Text (500 words min, no max)

Introduction

In this abstract, the authors highlighted the positive contributions associated with a sense of belonging regarding academic and institutional programming. Scholars attribute major characteristics of a sense of belonging as social, emotional, involvement, and harmony (St-Amand et al., 2017). To further embrace a student's sense of belonging, the concept of intersectionality will be explored and how it impacts student experiences. By addressing students' needs through a multifaceted lens associated with identity and incorporating consideration of components beyond the traditional categories while seeking to provide a sense of belonging, student affairs professionals may foster a more inclusive college experience for all students.

During this unprecedented time of the COVID-19 pandemic, now more than ever, students are experiencing mental health concerns concerning sustaining a sense of belonging and inclusion. Depression, anxiety, and stress issues are on the rise, with suicide prevention becoming a significant concern on tertiary campuses across the globe. A study conducted by Stachl and Baranger (2020) indicated that approximately 60% of chemistry department graduate students responded, "negatively or neutral about having faculty they can talk to who understand the hardships they face and feeling like an outsider" (p. 13). Furthermore, Ramos-Figueroa (2020) found that "75% of [Science, Technology, Engineering, and Mathematics] (STEM) graduate students do not consistently feel like they belong" (p. 2-3). Research shows that students with close relationships with their faculty have a stronger sense of belonging (Stachl & Baranger, 2020). By building a positive sense of belonging with graduate students, higher education institutions will be able to increase student retention and degree completion (O'Meara, Griffin, Kuvaeva, Nyunt, & Robinson, 2017).

Theoretical Framework

Understanding and the Significance of Sense of Belonging and Connection to Intersectionality

According to psychology researchers, the necessity to belong is considered an essential and fundamental factor to construct meaningful and fulfilling social relationships (Baumeister & Leary, 1995). In academic environments, a significant amount of research has ascertained a sense of belonging with school substantially and favorably impacts various motivational factors such as anticipated success, evaluation of course-related work, and self-declared performance and contribution (Goodenow, 1993a). In other words, building a sense of belonging in school can

positively contribute to academic engagement and attainment. The concept of a sense of belonging has been defined from various approaches. According to St-Amand, Girard, and Smith (2017), three major descriptive features are crucial when conceptualizing a sense of belonging based on the current literature. First, belonging is a critical factor in one's perceptual and emotional development (Mucchielli, 1980). Mucchielli (1980) posited that this concept of belonging to a group goes beyond being internal or external of groups. More specifically, it expands to the realm of enhancement of individual and social identity. Second, According to Hagerty et al. (1996), a sense of belonging is associated with an indispensable need to compel people to construct social connections and to establish group membership (Hagerty et al., 1996). Furthermore, the pursuit for group association is predicated on the postulation that the individual ultimately forms robust social connections with others and perceives belongingness to the group as a crucial component of their lives (Anant, 1967). Thirdly, Walker and Avant (2011) determined that there are four characterizing determinants from identified descriptions. The four key attributes are: "positive emotions, positive social relations, involvement, and harmonization" (St-Amand et al. 2017, p. 109). Gaining a comprehensive understanding of this fundamental human need will allow researchers to determine approaches on how to better cultivate a sense of belonging among students.

A considerable amount of previous research focused on equity disassembles student populations into categories of gender, race, social class, first language, etc. (Nichols & Stahl, 2019). This procedure of classifying students' identities into general categorization on the basis of the data-driven analysis context in the universities does not adequately consider the inherent essence of inequity and discrimination (Crenshaw, 1989). Kimberle Crenshaw conceives the term intersectionality to articulate the multiple levels of marginalization experienced by

unrepresented populations (Moorosi et al., 2018). Moreover, Crenshaw asserts that examining those isolated single elements is not sufficient to determine the experiences of those individuals affected by multiple systems of marginalization (Nichols & Stahl, 2019). The integration of intersectionality in the proposed topic is explicitly valuable as it capacitates understanding and fostering a sense of belonging to better support the students.

Significance and Implications

Hagerty and Patusky (1992) identify characteristics such as individuals, groups, organizations, environments, and spiritual dimensions as ways in which student affairs professionals may use in developing a sense of belonging among their own campuses. Furthermore, Crenshaw (1989) suggests the first step for practitioners may include addressing the needs of the oppressed or disadvantaged when building programming for hidden populations. The implications of this research suggest the importance of developing a sense of belonging among students, and in doing so, institutions may retain more students of diverse populations.

While discerning the concept of intersectionality and its connection to cultivating a sense of belonging, it is paramount to be aware of and acknowledges students who identify, belong, and associate with multiple minority identities and communities. The focus on intersectionality will assist student affairs professionals in developing and create programs in facilitating a culture of inclusivity and a more equitable campus environment. By fostering a sense of belonging through the focus of exploring intersectionality, it will assist students in engaging in meaningful dialogues surrounding multifaceted and intricate issues and expand their perception of imperative issues of diversity, equity, and inclusion is pertinent to all members of the campus community. It is paramount to create a new culture where every student feels included. There is

great value in embracing new perspectives from recognizing the importance of intersectionality to help higher institutions move forward to creating a more inclusive environment.

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Title

A Policy Case Study of the Deferred Action for Childhood Arrivals

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Abstract

The purpose of this paper is to examine the DACA program as a case study by focusing on the significance of the development of the directive and determine the key stakeholders' primary motivations and the measures they pursued to accomplish. This paper postulates issues surrounding DACA towards a more comprehensive immigration reform.

Proceedings Text (500 words min, no max)

Introduction

DACA is an acronym for Deferred Action for Childhood Arrivals (DACA). The conception of this program was initiated by President Obama on June 15, 2012 (Fathali, 2013). It is significant to note that the initiative was established on the 30th anniversary of *Plyler v. Doe*, a seminal case resulted in the Supreme Court's ruling to prevent public schools from imposing educational fees on the children of the undocumented community (Fathali, 2013). President Obama announced to the public from the Rose Garden his rationale for the plan. In his speech, he concentrated on the aim of his administration in working toward establishing a more equitable and effective immigration policy, particularly for a group of young immigrants frequently called 'Dreamers'. A significant proportion of the young people in this group were brought into the country as children and did not have connections to their country of birth. Many people refer this group as American citizens but without legal status. The president's announcement that day highlighted the motivation and justification for DACA (The White House Office of the Press Secretary, 2012):

This is not amnesty, this is not immunity. This is not a path to citizenship. It's not a permanent fix. This is a temporary stopgap measure that lets us focus our resources wisely while giving a degree of relief and hope to talented, driven, patriotic young people. It is the right thing to do.

This paper aims to examine the DACA program by focusing on the significance of the development of the directive and determine the key stakeholders' primary motivations and the measures they pursued to accomplish the goal. The paper is comprised of three main sections. Section one provides a historical overview of the Dream Act coupled with its connection with DACA, the main purpose of program, and the beneficiaries of the program. Section two considers the background description for the differentiation of lawful status and lawful presence in discussion of the development and implementation process, as well as the significance of the directive by inspecting examples from the responses of different states. For these reasons, this part is dedicated to how the program was developed and implemented during the Obama era. Next, the continuous evolution of the policy, with a focus on how this program evolved in the Trump Administration in combination with judicial influence and rulings on the policy, is explored in the final section. An evaluation of future implications for DACA is also addressed.

Historical Context of the Dream Act

The term 'Dreamers' originated from the Dream Act; it is an abbreviation for the Development, Relief, and Education for Alien Minors Act. This bill represents a federal bipartisan effort in validating the immigration standing of a significant number of qualified young people without legitimate documentation. The Dream Act was initially introduced by Senators Orrin Hatch and Richard Durbin (Fathali, 2013). Over twenty various versions of the Dream Act have been presented before Congress since its inception in 2001. Although nuanced

particulars were modified in each version, the cardinal components of the bill remained unchanged (Fathali, 2013). The 2011 edition of the Dream Act indicated the following requirements for an eligible recipient: 1) must arrive to the United States prior to fifteen years of age; 2) must live in the country for five years before the enactment of the legislation; 3) must demonstrate excellent moral character and possess a pristine personal record; 4) must acquire a high school diploma or equivalent or obtain acceptance from postsecondary institutions; and 5) must be below the age of thirty-five (Fathali, 2013). As stipulated in this bill, youth who satisfied these standards were eligible to gain lawful status predicated on a provisional ground of six years (Fathali, 2013).

In an attempt to generate bilateral support from both political parties in 2007, Senator John McCain, Senator Ted Kennedy, and President Bush collaborated to advocate for the Immigration Reform Act, which encompassed the entire content of the Dream Act (Fathali, 2013). Despite this notable endeavor, the bill failed to gain the necessary 60 votes to interrupt the Republican filibuster (Fathali, 2013). In the subsequent year of 2010, the bill acquired considerable bipartisan support and nearly reached its passage. During that year, the Dream Act received favorable approval in the House of Representatives and attained the dual-party predominance in the Senate but was unsuccessful by only five votes in breaking the filibuster (Fathali, 2013).

The construction of DACA is a direct result of the Senate's unproductive efforts to legitimize the Dream Act in 2010. The most significant distinction between DACA and the Dream Act is that DACA merely grants qualified undocumented youth temporary relief from deportation, but the initiative does not offer a pathway to citizenship (Kominers, 2016). In other words, the DACA program provides deferred action of removal from the United States and

extends provisional legal presence to nearly 800,000 qualified youth who entered the country as children (American Immigration Council, 2020). In contrast, the Dream Act allows young people who reside in the U.S. for an extensive duration of time, who have completed secondary education and have demonstrated intention to pursue higher education learning, to become recipients of permanent legal status contingent on a brief length of several years of restrictive conditions (Kominers, 2016). If the Dream Act is authorized, it would produce a sustainable solution to assist this undocumented youth group to overcome the barriers related to immigration. Subsequent obstruction of passing the bill and the absence of comprehensive immigration reform prompted overwhelming condemnation upon the Obama Administration to explore and apply executive measures to proceed with interim exemption for this unique group of youth (Kominers, 2016). According to Kominers (2016), the initiative was accomplished through the collective determination of a wide range of advocates placing pressure on the President - Dreamers participated in numerous protests and 96 scholars and professors sent a petitioning letter to urge the President to pursue and utilize the executive implementation.

Development and Implementation Process

Lawful Presence vs. Lawful Status

In order to fully grasp the tension on the issues of the DACA program, it is crucial to clarify the context for the emergence of lawful presence. Historically, there are only two categories of classification for noncitizens: people who are granted status and people without status (Kominers, 2016). The institution of document requirements presents a clear separation of the two categories. In spite of the historical categorization, an alternative classification emerged after World War II with the establishment of parole, which was created to provide legal occupancy to specific groups of immigrants propelled by humanitarian motivations (Kominers,

2016). This third category is known as the abstruse gray void in immigration in which the immigrants are offered authorization to remain in the United States for employment purposes but are not provided with lawful status (Kominers, 2016). Therefore, there are inherent differences between lawful status and lawful presence. In fact, DACA is a recent illustration of the turbulent controversy of lawful presence. Given these points, visa requirements forged the notion of illegal immigrants. It is important to note that under the current system, unlawful presence does not constitute illegal criminal offense. In other words, unlawful presence would only result in civil repercussions (Kominers, 2016). In general, Kominers (2016) highlighted that it is not considered a criminal transgression for an undocumented immigrant to continue to reside in the United States. Scholars have long recognized the fallacious assumption by the general public that an individual who does not hold immigration documents is indisputably “illegal”, but in actuality, the components surrounding the legal status are complicated with contingency on available options for relief and opportunities on the path to gaining permanent status (Kominers, 2016).

Key Players in the Process

The lack of comprehensive immigration reform initiatives at the federal level gives prominence to individual states’ interpretation and addresses the immigration population’s confinement (Cebulko & Silver, 2016). It is important to realize that President Obama’s 2012 DACA memorandum exercises prosecutorial discretion in initiating the DACA program, shifting the scenario into a more inclusive trajectory for immigration, particularly to a subgroup of young people. However, due to the nature of DACA being a federal directive and not congressional legislation, it lacks federal resources to assist in the implementation process. To recapitulate, the key issue that materializes from the DACA case is how the goals set forth by the executive

prosecutorial discretions can be incorporated into the lives of predetermined recipients in various regions (Graauw & Gleeson, 2016). In particular, how would the multitude of stakeholders such as the “local government officials, legal services providers, advocacy organizations, funders, consulates, and labor unions, integrate or not DACA into their mission, programming, and resource allocation” (Graauw & Gleeson 2016, p. 1)? It can be observed from the context described above that the integration process of delayed action in the DACA program operates within a federalist framework (Graauw & Gleeson, 2016). Notably, this process involves government officials in two key aspects: first, those whose work chiefly concentrate on the regulatory realm such as “immigration officials, police officers, and labor standards enforcement agent” (Graauw & Gleeson 2016, p. 5); second, it primarily includes those who focus on service-oriented roles, such as “education officials, public health care providers, and officials in state and local immigrant affairs offices” (Graauw & Gleeson 2016, p. 5). As mentioned earlier, the DACA program is derived from the measure of prosecutorial discretion of the executive administration and does not modify the legal status of DACA grantees, which means state legislatures would retain the major role of executing the key policies relating to the benefits approved by the program, given that these initiatives are aligned with the existing legislatives internal to the state’s confines (Cebulko & Silver, 2016). In other words, DACA recipients will encounter varied levels of opportunities and admission to participation predicated on the political environment in their residing states. Consequently, Cebulko and Silver (2016) additionally assert that while the DACA program offers opportunities for potential grantees on a federal level, distinctions in state circumstances could persist, or in other cases, intensify the tension subsequent to its integration procedure.

The recent line of established research brings to light two main issues from the intense debate on the implementation process of DACA at the state level (Ludin, 2013; Cebulko & Silver, 2016). The first issue centers on the right to receive government-issued identification, such as driver's licenses. The second issue concentrates on the pursuit for higher education attainment, specifically with granting DACA beneficiaries in-state tuition. Driver's licenses signify the authorization to travel and more importantly, promotes a recognition of legitimacy (Ludin, 2013). According to Ludin (2013), immediately upon the release of the DACA directive, several state governors remarked that their corresponding states would not join the plan in the distribution of driver's license to the DACA recipients. Ludin (2013) indicates that the Real ID Act of 2005 supplies states with further prerogative to examine the applicant's immigration status prior to the issuance of state identification. The major connection with the qualification of DACA beneficiaries for drivers' licenses focuses on their legal presence in the country. Memos released by the US Citizenship and Immigration Services (USCIS) clearly indicate that grantees of deferred action possess lawful presence in the duration of the granted period of deferred process (Ludin, 2013). In spite of the content described in the memo, a number of states challenged this policy by repudiating DACA beneficiaries the assistance of issuing them a driver's license even if these individuals received the approval of deferred action. For instance, the governors of Arizona, Texas, and Nebraska issued comparable executive guidance to deny the issuance of driver's licenses to DACA recipients. The questionable actions of these states were closely associated with discrimination; as a result, the American Civil Liberties Union (ACLU) submitted several litigation cases against the three governors to retract the executive orders (Ludin, 2013). Following these lawsuits, the state of Michigan reacted by altering their existing measures to provide issuance of identification to DACA recipients. In the case of

Massachusetts, the governor supported the DACA initiative and offered qualified DACA beneficiaries in-state driver's licenses in the same way their peers received their identification.

In contrast, North Carolina's Department of Motor Vehicles (DMV) rescinded licenses and terminated the issuance of licenses to receivers of DACA. Cebulko & Silver (2016) indicates a vivid description of the display of the licenses at the initial stage of the implementation: "the North Carolina DMV designed vertical licenses with a magenta strip across the top and the words, no lawful status and limited term included on the bottom and side of the licenses in red font" (p. 558). This action led to overwhelming protests across the state. In response to the condemnation, the Department of Transportation revised the design of the license to be displayed horizontally and removed the magenta band. However, even following the alteration, the licenses still had the statement, "LEGAL PRESENCE NO LAWFUL STATUS" (Cebulko & Silver 2016, p. 559). The National Immigration Law Center confirms that the DACA beneficiaries' eligibility to receive driver's licenses is aligned with the provisions in the state, even though this type of identification is within the realm of state jurisdiction (National Immigration Law Center, 2013). At that time, Ludin (2013) observes the ambiguity of the law on the issuance of driver's licenses led to largely undetermined responses among different states. The majority of the states followed the rationale to only issue DACA recipients' licenses once they obtained a work permit.

On the issue of in-state tuition for DACA beneficiaries, Cebulko and Silver (2016) point out there are more receptive states toward inclusion than disapproving states of exclusion. Massachusetts did not previously offer in-state tuition to unauthorized youth except in cases where a work permit was presented prior to the release of DACA. However, shortly after the announcement of DACA, Massachusetts governor Deval Patrick disclosed that the state would extend in-state tuition to qualified youth. Furthermore, the Governor commented that providing

in-state tuition to DACA youth was not in contradiction with any existing state policies, but rather implementing prevailing policy previously in place in the state. It is crucial to note in the context of Massachusetts that the DACA initiative not only fostered temporary alleviation from removal and work authorization for the recipients, but it also secured transformation in education prospects by granting this group in-state tuition (Cebulko & Silver, 2016). In contrast, the scenario in North Carolina was vastly different. Cebulko and Silver (2016) further illustrate that the state of North Carolina was traditionally considered an aggressive leader in incorporating new provisions to constrain access to available opportunities for unauthorized immigrants. Despite the introduction of DACA, the state continued to refute the tendering of in-state tuition to DACA grantees, irrespective of being characterized as a top ten state for prospective DACA applicants (Cebulko & Silver, 2016).

Potential Future for DACA

The Ongoing Development of the Policy

In 2017, the Trump administration announced its intention to revoke the DACA program by claiming that former President Obama exceeded his executive authority in establishing the directive and that the program was a depiction of his infringement on the authority that belongs to Congress (Redden, 2020). In June of 2020, the Supreme Court deterred the Trump Administration's attempt to eliminate the DACA program, which means the initiative will continue for the time being. In fact, the Supreme Court decided that the reversal of DACA had to be terminated (Redden, 2020). The Trump Administration's effort to rescind DACA failed based on the determination of the Court. Furthermore, the Court stated that the actions displayed by the Department of Homeland Security (DHS) were "arbitrary" and "capricious" in violation of the Administrative Procedure Act (APA) in its decision to repeal the program, meaning that it was

an abuse of discretion resulting in dissonance with the law (Redden, 2020). The APA referred to the governance of procedure on how federal departments establish and release guidelines (Schwinn, 2019). The issue was debated furiously because the DHS initially distributed a memorandum anchoring the rescission constructed on a legal rather than policy basis. In a later issued memorandum, the then-Secretary of Homeland Security Kirstjen Nielsen retracted that reasoning and explained that it was in actuality filed on the basis of policy (Schwinn, 2019). The Supreme Court refuted that explanation and asserted that the DHS did not proceed with the appropriate course to rescind the program; therefore, the motion to withdraw was invalid. Of note, the Court was not deciding the legitimacy of the rescission of the policy, but rather, whether or not DHS had observed the procedural requirement necessary to provide reasoning for the claim (Coyle, 2020). In the oral arguments, Chief Justice Roberts commented that the Trump Administration's attempt to overturn the program could have been successful if it had been implemented with accuracy by following the rule of law; however, the more important issue was focused on concerns related to humanitarian responses (Coyle, 2020). In the core of this decision, Chief Justice Roberts led the opinion in the 5-4 ruling and was joined by the four liberal and left-leaning justices (Coyle, 2020). The court ruling revealed two key issues. First, the Court's reserved jurisdiction to review the government's decision to terminate DACA. Second, the current administration's implementation to revoke DACA was in transgression of APA. As a result, this landmark verdict by the Supreme Court presented a tremendous relief for the more than 700,000 DACA recipients (Redden, 2020). Many DACA recipients expressed that this program was crucial for their survival in the U.S. as they were completely reliant on it (Redden, 2020).

Future Implications

Overall, the DACA program is a delaying mechanism to shield undocumented youth from deportation; therefore, it is not a form of deliverance. In other words, this initiative does not provide permanent protection for Dreamers. Proceeding forward, it is essential to establish a legislative solution to offer continuous and consistent protection to this population. Completely eliminating the barriers imposed on the group would be paramount to Congress approving a reform that would encompass a pathway to citizenship. The current immigration system has triggered a drastic challenge that only a substantial reform could remedy (Fathali, 2013). DACA serves as a catalyst to facilitate the inception of more comprehensive immigration reform. To truly maximize the effectiveness of the reform, the transformation must include not only DACA recipients but also the entire population of undocumented immigrants residing in the United States.

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Title

Asian Americans in US Higher Education: A Content Analysis of Publications from 2016 to 2021

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Abstract (50 words max)

The purpose of this study is to uncover the current trends and issues in studies pertaining to Asian Americans in US higher education to gain a better understanding of the topic that can inform institutions and future researchers in determining the critical issues in this domain.

Proceedings Text (500 words min, no max)

Introduction

Universities and colleges in the US consider themselves as the bastion of inclusiveness in a time when racial equality seems to have regressed backward. Scholars and policymakers who reside in these institutions advocate for more parity and diversity by breaking artificial borders inside and outside these institutions. Despite the effort, there are subtle issues in society concerning race that is difficult to perceive by the unaided eye and address effectively. One such issue is the anti-Asian attitude and bias experienced by Asian Americans and Asian descent faculty, staff, and students in higher education institutions and general society (Choo & Diaz, 2021; Diep, 2021). The false narratives propagated by former President Trump had pushed the anti-Asian sentiment to an alarming rate (Salcedo, 2021). Indeed, there is an urgent need to address this issue, including the US higher education system. Research, a way to generate knowledge and theory that can help solve societal issues (Stage & Manning, 2015), is one possible way that scholars can undertake to understand this particular matter.

The act of racism and aggression against Asian Americans is not tolerated. This issue, however, is not the solitary issue relevant to the Asian American community in US higher education. While it is essential to research this particular issue and how it can affect individuals of Asian descent, scholars should not focus solely on this particular topic and neglect other topics pertinent to the current climate of US higher education. Scholars have made substantial progress in bringing diverse topics related to Asian Americans to a broader audience in the higher education community. However, there is still a need to continue the effort in researching critical issues regarding Asian Americans in US higher education and understand the progress scholars have made, including the ways race continues to affect Asian Americans (Ng et al., 2007). This study aims to uncover the current trends and issues in studies connected to Asian Americans in US higher education by analyzing the above-mentioned available literature. While literature review can take form as a background piece in a journal, synthesizing articles can also contribute to creating an original and valuable work (Paré et al., 2015).

Previous studies have utilized literature review to analyze the methods, topics, and findings of available literature that can help in understanding the trends and issues in a particular topic of interest in US higher education (Hsu et al., 2012; Tess, 2013), including topics related to Asian Americans (Liu, 2009; Ng et al., 2007). This study uses categories introduced by Ng et al. (2007) to enrich the analysis and categorization of the topics pursued by researchers. These categories comprised of representations, student affairs policies and implications, Asian American student experiences and voices, faculty issues, and the field of Asian American studies. The way of how Asian American faculty, staff, and students in US higher education constitutes the representations category. Specifically, the representations category includes two sub-categories: micro-level representations that discuss Asian American representations in a

college or university and macro-level representations that consider the overall Asian American representations in US higher education. Counseling, advising, and development of Asian American students are discussed under the student affairs policies and implications category. Asian American student experiences and voices capture the experiences of Asian American students in their journey to acquire a higher education degree, beginning from the selection of the institution up until their graduation. Matters related to Asian American faculty trends and issues are included in faculty issues. Finally, the efforts to further the knowledge of and institutionalize an Asian American study, which is different from Asian studies, are categorized as Asian American studies. This study also analyses the different characteristics of research studies, such as the number of published articles, demographics, and methods, in the literature review process (Hsu et al., 2012). Guided by previous studies in analyzing prior articles, this study hopes to unearth new information that can contribute to the overall knowledge of Asian Americans in US higher education. The research questions that will guide this study are:

1. From 2016 to 2021, what are the trends and research issues for studies related to Asian Americans in US higher education?
2. From 2016 to 2021, what is the distribution of the research for studies related to Asian Americans in US higher education?
3. From 2016 to 2021, what are the adopted research methods for studies related to Asian Americans in US higher education?
4. Informed by the available literature, what should policymakers consider when drafting and enacting policies that can help alleviate issues concerning Asian Americans in US higher education?

5. Informed by the available literature, what area(s) should higher education institutions focus on to help Asian Americans within their organizations?
6. Informed by the available literature, what topic(s) or area(s) should future researchers pursue?

The Controversy Behind the Term Asian American and Scope of the Study

The origin of the term Asian American was derived primarily during the political movement in the Civil Rights era (Lee & Zhou, 2004). The term was created as an overarching description under the initiative of primarily Chinese and Japanese American university students in an attempt to activate support to increase awareness on issues such as racism and discrimination. Consequently, these efforts were chiefly channeled through the demonstrations for the Vietnam War to promote support among different ethnic groups (Lien, 2001). This outpouring development further propelled campus initiatives urging for the implementation of ethnic studies programs. In fact, the inception of this type of movement was observed at San Francisco State College (Lien, 2001). In other words, from the perspective of Asian American studies, this term was constructed from the modern civil rights movement at a period of time when people were striving for empowerment against a supremacist society that was designated by white and viewed the values associated with whiteness as the communal standard which ostracized the remaining groups to a relegated and inferior position (Ho, 2015). Since its initial development, the pan-ethnic movement has emerged with new meanings. Subsequently, the term has further deviated into several facets, encompassing the expansion of supplementary Asian American studies programs, the establishment of social services, programs combating against

anti-Asian discrimination and violence, and multiple advocacy arrangements towards pan-ethnic as a collective community (Wei, 2004).

The term Asian American synchronously unifies and divides the community concerning identity. From one discernment, the term coalesces people who associate with this demographic attribute in the US through the political realism of the history of racialization (Ho, 2015). More specifically, the Asian community has been exposed to these inequalities and continues to be marginalized by these issues from the aspects of academic and popular culture in the US society (Ho, 2015). On the contrary, this collective term does not comprehensively capture the distinction and diversity that exist within the group. The term is a singular racial label that overlooks the group's uniqueness in terms of ethnicity, heritage, and various other identity-related determiners (Ho, 2015).

Based on the United States Census findings, the Asian American as racial classification constitutes over thirty various ethnic and cultural groups (Iwamoto & Liu, 2010). Consequently, the misperception of Asian Americans is frequently linked to the exchangeable utilization of race, ethnic identity, and culture to define the community (Iwamoto & Liu, 2010). For the purpose of this research pursuit, the literature under analysis entails Asian and Asian Americans. The term in connection with race is defined as "the category to which others assign individuals based on physical characteristics, such as skin color or hair type, and the generalizations and stereotypes made as a result" (Cooper & Leong, 2008, p. 134). Concerning ethnic identity, the term is closely aligned with the cultural traditions in conjunction with incorporating and preserving cultural characteristics (Cokley, 2005).

Methodology

This study uses a literature review approach to gather the data by analyzing the topics, methods, and findings of the available literature (Hsu et al., 2012; Lye & Koh, 2014; Ng et al., 2007). This study aims to discover and understand the current trends and issues regarding studies in Asian Americans in US higher education. Furthermore, the study included peer-reviewed articles which are more than two pages in length, excluding editorials, book reviews, and viewpoints. (Aloini, Dulmin, & Mininno, 2007). In order to find the latest trends, only publications from the period of 2016 to 2021 are incorporated in the study. As iterated previously, this study is interested in articles that study Asians and Asian Americans. For the purposes of this study, Asian Americans are defined as individuals of Asian descent who have been exposed to the tenets of American society, such as individualism and hardworking (Junn & Masuoka, 2008). That exposure and the consequent interplay between individualist orientations, ethnic identity, and beliefs about stereotypes created a unique identity for Asian Americans. The initial effort in finding the relevant articles netted 38 peer-reviewed publications on Asian Americans in US higher education in total.

Preliminary Findings and Discussion

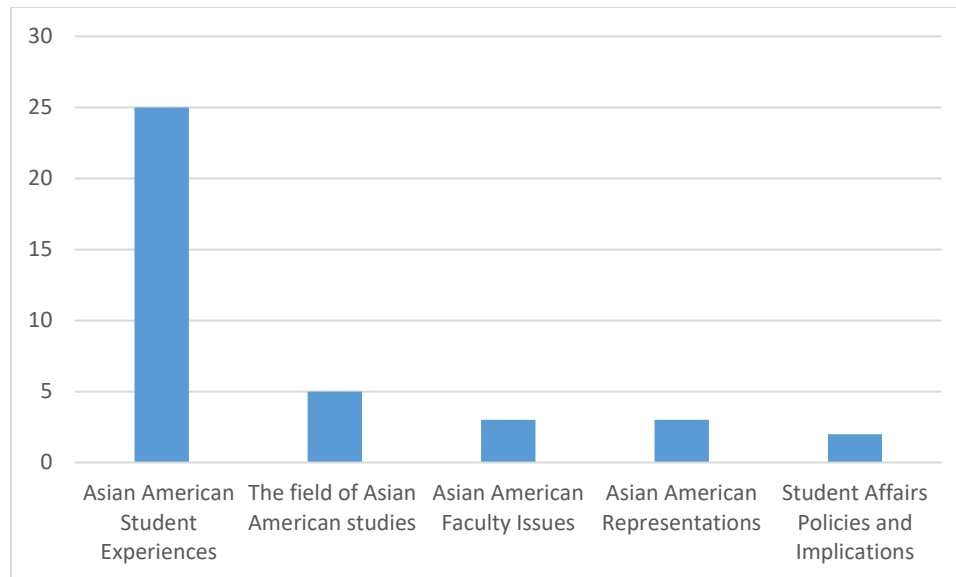
This study analyzed a total of 38 articles on Asian Americans in higher education. From the 38 peer-reviewed articles that were analyzed, this study found that Asian American student experiences and voices as the category with the most significant number of studies with 25 peer-reviewed articles. The field of Asian American studies category is second with five articles. Faculty issues and representations categories are tied for the third with three articles for each aforementioned category. Student affairs policies and implications category arrive at fourth with

two articles. The complete list of categories and number of publications is shown in figure 1.

From the 38 articles analyzed, only one article explicitly studied the racism/micro-aggressions that Asian American students experience on a college campus.

Figure 1

The number of published articles categorized by themes

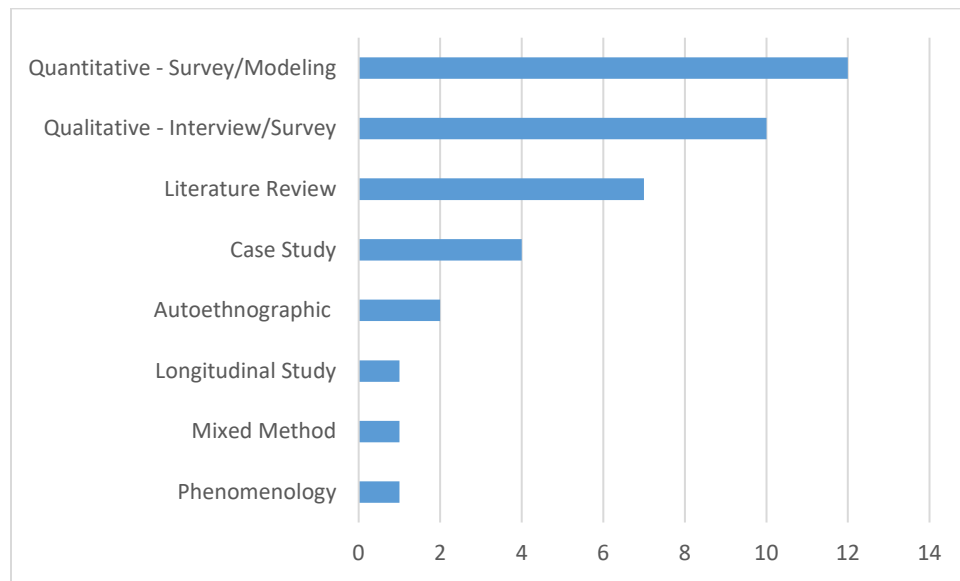


Different methods are represented by the articles that were analyzed. A qualitative study with interviews is the most utilized method by the researchers, followed by a quantitative survey, literature review, and case study. However, when grouped by their primary method, quantitative is the most preferred method, followed by qualitative, literature review, and case study, as shown in figure 2. The frequent use of the quantitative method, when compared to other methods in this particular topic, is understandable as it is considered to be more convenient and generalizable to the overall population. The qualitative method as second to quantitative method is a welcomed finding as the nature of qualitative inquiry can bring more depth in the knowledge regarding Asian Americans in higher education. Literature review as the third most used method is also

valuable as creating an original and valuable work can be achieved by synthesizing articles (Paré et al., 2015).

Figure 2

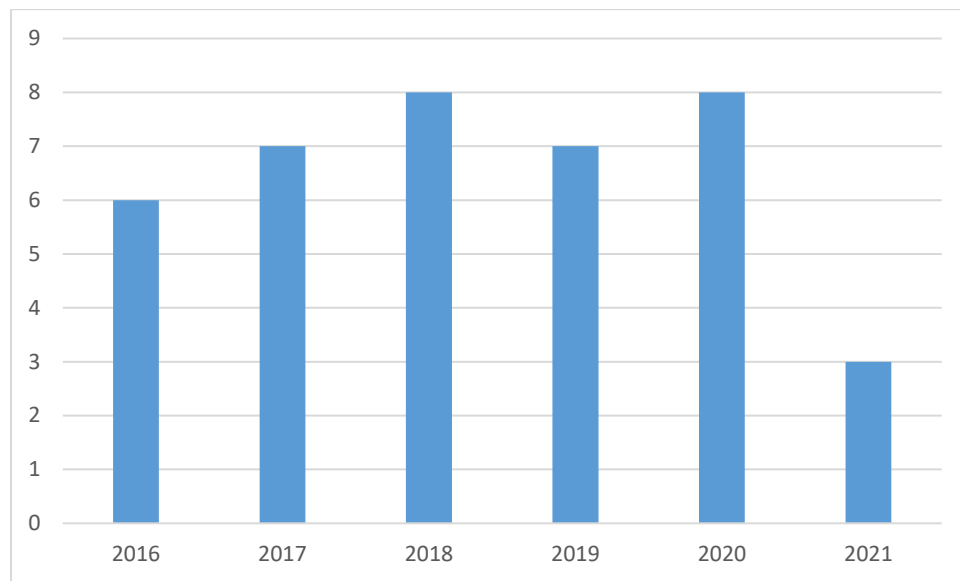
The number of published articles categorized by methods



The number of articles published each year is consistent, even in 2020 with the global pandemic. There were six articles published in 2016 and 2017, seven in 2019, and eight in 2018 and 2020. There are only three articles published thus far for the 2021 academic year when the data was analyzed in spring 2021. The distribution of the published articles is shown in Figure 3. While the fact that the number of yearly publications was consistent between 2016 and 2021 is encouraging, the lack of growth in research regarding Asian Americans in US higher education is something that future researchers may want to pursue. Indeed, with the rise of hate crimes toward Asian Americans in the United States due to the Covid 19 pandemic, one would assume that there will be an increase in studies regarding racism/micro-aggression that students and faculty members experience in 2020 and part of 2021.

Figure 3

The number of published articles by year



The preliminary findings suggest that the experiences and voices of Asian American students seem to capture the attention of researchers in the field more than any other topic. The lack of interest in studying Asian American representations, both at the macro and micro levels, is surprising as Asian Americans are still underrepresented, especially in the leadership position at US higher education institutions (Chung, 2014; Prinster, 2016). One notable piece of information from the findings is the low number of studies that specifically address racism/micro-aggressions related to Asian American faculty, staff, and students, experiences in a higher education setting. Although previous literature has called for continuing effort to research this particular issue, there appears to be a deficiency (Museus & Park, 2015; Ng et al., 2007).

The preliminary findings also suggest that researchers utilize diverse methods in researching Asian American issues in US higher education. Indeed, the utilization of quantitative, qualitative, and literature reviews helped enrich the collective knowledge on the topic. There are, however, opportunities for future researchers to use other underutilized methods

such as case study, autoethnography, longitudinal study, mixed-method, and phenomenology. The application of different methods will help bring more diverse issues regarding Asian Americans in US higher education to a broader audience and give a more holistic view of the topic.

Significance

The findings of this study will affect several different stakeholders in US higher education. First, it can inform policymakers on recent trends and issues regarding Asian Americans in US higher education and help shape policies to address those trends and issues. Second, it can inform administrators and student affairs professionals on services that can be improved to best serve Asian American faculty, staff, and students. Finally, it can inform future researchers on topics and areas that scholars need to focus on and pursue. The researchers hope that the knowledge on topics that have been researched heavily will sway researchers away and focus on significant issues that can improve the quality of Asian American faculty, staff, and students in US higher education.

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A Framework for Strategically Aligning A Culturally Relevant Network Mentoring Continuum

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Introduction

According to the National Academy of Sciences, mentoring is “a professional, working alliance in which individuals work together over time to support the personal and professional growth, development, and success of the relational partners through the provision of career and psychosocial support.” Furthermore, mentoring is an “intentional relationship focused on developing self of relatively unseasoned partner/mentee/protégé through dialogue and reflection; an implicit focus on development of the next generation in context of interpersonal relationships.” In higher education, mentoring is an essential career development phenomenon that has been approached from three dimensions; “mentoring students by faculty, mentoring junior faculty by senior faculty, and mentoring in the career development of administrators.” This process is fostered through formal and informal learning relationships for effective faculty career development (Lunsford, Crisp, Dolan, & Wuetherick, 2017). However, effective faculty mentoring has been a challenging process due to organizational culture, gender, and race related issues that continue to impact access to mentoring for women and underrepresented groups (Gibson, 2006), specifically in science, technology, engineering, and mathematics (STEM) fields. Hence, researchers have advised that formal mentoring relationships “not only potentially compensates for situations bereft of faculty bonding but also better positions college leaders to meet their goals of retention and success while generating widespread cultural change” (Mullen, Feyten, Holcomb, Kealy, & Keller, 2008, p. 45). Drawing upon the extant literature, this paper presents a framework and avenue for culturally relevant mentoring (CRM), and networking designed to assist women of color (WOC) doctoral students, post-doctoral scholars and early career faculty members in developing the skills necessary for success in higher education. The **mentoring continuum framework** is centered on culturally relevant mentoring approaches, senior scholar mentors, recruitment strategies for the academy, mentor training, assessment and accountability, and longitudinal development opportunities.

This work is based upon the practices of several proven programs/organizations such as the National Science Foundation Florida Alliance for Graduate Education and the Professoriate (FL-AGEP) Transformation Alliance: Improving Pathways in the Professoriate for Minority Women in Science, Technology, Engineering, and Mathematics (STEM). The **mentoring continuum framework** is centered on culturally relevant mentoring, senior scholar mentors, academy recruitment strategies, assessment accountability, and longitudinal development opportunities. This framework focuses on the developmental continuum of emerging scholars in the academy to increase women of color in STEM disciplines.

Background

The Florida Alliance for Graduate Education in the Professoriate (FL-AGEP) Transformation Alliance: Improving Pathways in the Professoriate for Minority Women in Science, Technology, Engineering, and Mathematics (STEM) is a strategic alliance that addresses the issues of (1) advancing underrepresented women (URW) faculty in STEM, and (2) the retention of URW post-docs and graduate scholars for careers in academia. Florida Agricultural and Mechanical University (FAMU) with the University of South Florida (USF) and Virginia Polytechnic Institute and State University, Florida International University (FIU), Florida Memorial University (FMU), and Bethune Cookman University (B-CU) are the FL-AGEP Alliance institutions. As a NSF AGEP effort, the FL-AGEP seeks to provide a structured mentoring and professional

development program model that facilitates the transition and advancement of doctoral, post-doctoral, and early-career faculty minority women in STEM professoriate. The FL-AGEP alliance values the need for women in STEM to have mentorship and professional development programs that will assist in their completion of doctoral degrees and promotion in the academy. The objectives of the FL-AGEP Alliance are to:

- Objective 1: Develop an alliance model that supports stage-appropriate transitions and advancement of minority women in STEM as faculty.
- Objective 2: Implement a programmatic model that includes research bootcamps (RBCs), online mentoring, research symposia, and longitudinal faculty development opportunities across alliance institutions.
- Objective 3: Study and refine the model and its key design components for doctoral students, postdoctoral scholars, and early-career faculty.

The FL-AGEP will also disseminate research and sustain a national model in Florida, which can be replicated in other areas to increase and enhance strategies to recruit and retain minority women in STEM within the professoriate.

Conceptual Framework

A conceptual framework for a developmental continuum for WOC scholars is part of the FL-AGEP mentoring model to address objective two. The FL-AGEP mentoring model constitutes a roadmap for grooming and nurturing early career women of color to the professoriate. The FL-AGEP model focuses on a community of senior scholars, the Sisters of the Academy (SOTA) Research BootCamp®, the National Center for Faculty Development and Diversity (NCFDD) Mentoring Map, and longitudinal faculty development. The FL-AGEP bridges CRM practices with program/organizational methodologies to establish an initial mentoring alliance that facilitates peer mentoring among participants and network mentoring by a Community of Senior Scholars.

The research questions that informed this study are: 1) What components of a network continuum are needed? What are components of a CRM continuum?; and 2) Can a culturally relevant mentoring network increase visibility of women of color in the academy?

A CRM approach includes supporting career and psychosocial connections. CRM garners a foundation that mentors are genuine, trustworthy, intentional, culturally aware, and supportive (Edney, 2019). Mentors provide pathways to opportunity and help mentees attend to their psycho-social needs. FL-AGEP will use three strategies for CRM to include: 1) mentee(s) to Senior Scholar; 2) several mentees to Community of Senior Scholars; and 3) peer/ladder mentoring by women of color for women of color. The FL-AGEP Mentoring Network has three mentorship nodes, which are supplemented by mentoring resource nodes as referenced in Figure 2.

- Peer mentors or ladder mentors to Faculty-post doc-dissertator;
- Community of Senior Scholars;
- University and SOTA Mentors,

Complementing the diversity of the FL-AGEP women of color participants, senior scholars are skilled and experienced mentors who are guided by their learned experiences, cultural awareness (field and gender), reflective style and philosophy, and continuous mentoring of former mentees/proteges. Senior scholar training will happen prior to a research bootcamp established to initiate the CRM. Senior scholars are women of color who are tenured, experienced, and skilled STEM research mentors in the professoriate.

Being aware and closely connected to the cultural relevance of women of color in STEM is critical to the selection of senior scholars and further emphasizes empathy and sensitivity to the FL-AGEP participants' experiences, expectations, and enhanced mentoring impact.

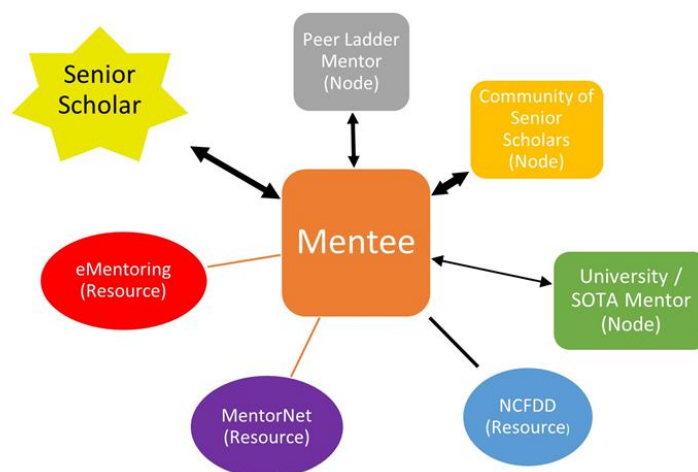


Figure 1. FL-AGEP Mentoring Network. Note, lines with arrowheads indicate bidirectional CRM engagement; Line weight indicates the mentoring relationship importance to the model.

A senior scholar engagement plan is designed to help establish a network of senior scholars for the FL-AGEP project. FL-AGEP Senior Scholars will provide mentorship grounded in culturally relevant mentoring (CRM) practices. A CRM approach includes engagement beyond the career and includes psycho-social connections. A recruitment strategy involved accessing a pool of senior scholars (tenured faculty) within the Florida State University System (FL SUS), the Florida State College System, and at regional and national institutions. The FL-AGEP mentoring engagement plan aims to promote, support, and advocate for broadening participation of women of color in STEM by using the following strategies:

Strategy 1: Outreach to senior scholars in the SUS to communicate goals of the FL-AGEP RBC and extend an invitation to participate

Strategy 2: Partner with state and regional fellowship programs for the URW to engage with senior scholars. In accordance with the NSF definition, the URW are African American, Hispanic American, Native American Indian, Alaska Native, Native Hawaiian, and Native Pacific Islanders.

Strategy 3: Promote and highlight the engagement of senior scholars through FL-AGEP social media, Feature participants and senior scholars on the FL-AGEP Facebook page, the FL-AGEP main website, and through other social media avenues e.g., Instagram.

Regarding mentor training, the Center for the Improvement of Mentored Experiences in Research (CIMER) states that:

“Effective mentoring can be learned, but not taught...There is certainly no book that can tell us how to deal with every student or situation, but a systematic approach to analyzing and discussing mentoring may lead us to a method for tackling the knotty challenges inherent in the job” (CIMER, 2021).

To this end, the FL-AGEP offers training sessions for senior scholar mentors. Training components will continue to evolve with the literature and new research and adjustments should be made where necessary. The FL-AGEP Alliance provides a minimum of three mentorship model training sessions each year and follow up mini-sessions with individual senior scholars as necessary (Adams, 1998a, 1998b, 2002; Mentoring Action Plans, 2021; NCFDD, 2021; & Thomas, 2014). Each session is three hours in length and highlights the Sisters of the Academy (SOTA) Research BootCamp® structure of mentoring and an overview of the National Center for Faculty Development and Diversity (NCFDD) model. Training strategies will assist mentors in solving mentoring dilemmas, contemplating mentoring topics for discussion, sharing resources, and providing direct and indirect tactics for moving the FL-AGEP Model forward. Training components includes mentor roles/responsibilities/expectations and the function of effective mentoring.

For the assessment and accountability measures, during training sessions, senior scholars review assessment tools to aid in establishing a mentoring plan. Assessment tools include Senior Scholar Engagement Assessment, Mentoring Action Plan, Participant Expectation Assessment, Participant Readiness Assessment, Participant Engagement Assessment, and Participant Skill Assessment.

The longitudinal development opportunities will include networking and mentoring beyond the grant and allow participants to engage with alliance institutions to give invited research talks, lectures, and/or workshops for longitudinal faculty development.

Context

A survey was conducted of the senior scholars at the conclusion of the three research bootcamps involving STEM women of color who are dissertators, post-docs and early career faculty. Prior to the start of each research bootcamp, a training for the senior scholars was conducted providing them with the necessary tools, expectations, and next steps in their role. The survey was conducted by external evaluators Quality Measures, LLC to gauge the involvement of senior scholars.

Methods and Findings

A sample of eight out of 16 senior scholars (50%) took part in this study. The survey took five-minutes to complete. The following components of culturally relevant mentoring were used as methods of the study to develop a CRM continuum framework in Figure 2: WOC senior scholar recruitment; WOC senior scholar training; research bootcamp engagement with WOC; longitudinal opportunities; and evaluation and feedback.

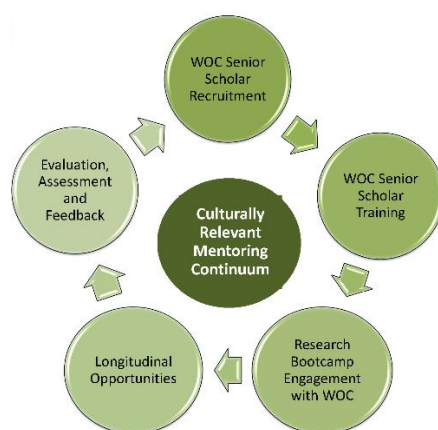


Figure 2. Framework for the Culturally Relevant Mentoring Continuum

The survey was used to evaluate a key component of the CRM continuum, the WOC senior scholar training, which provided data for the evaluation and feedback to further enhance the components of the continuum. High marks averaging 3.90 out of 4.00 were given by the senior scholars of all three research bootcamps on their preparation for the mentoring experience.

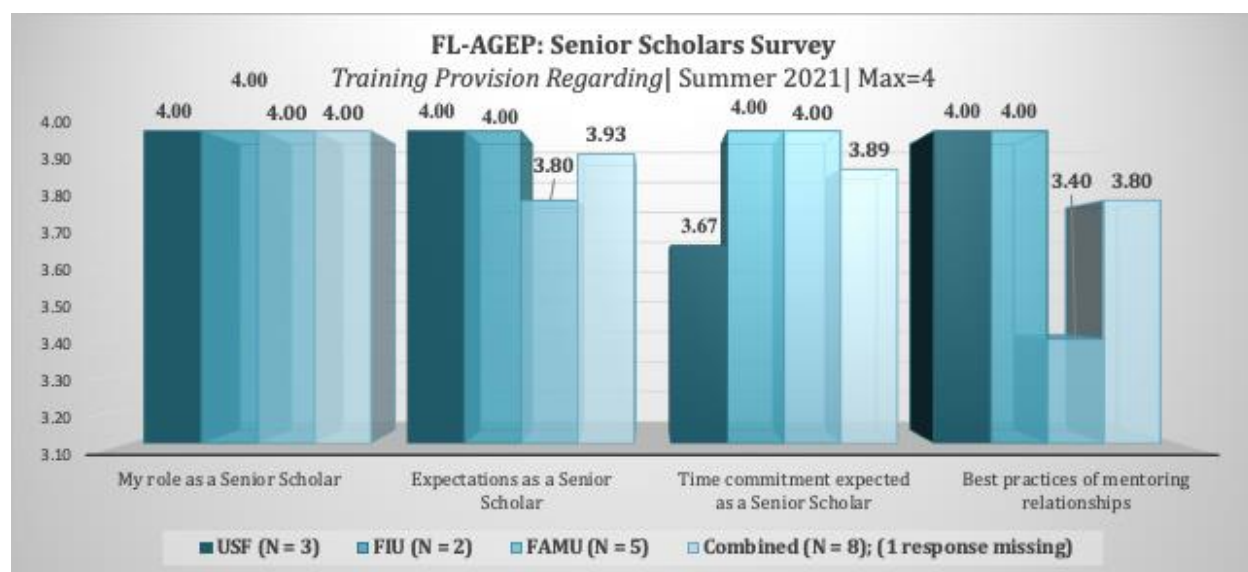


Figure 3. Results of FL-AGEP Senior Scholars Survey

All (N = 8) respondents indicated that they were *Prepared/Very Prepared* to serve as a senior scholar as a result of attending the senior scholars training. Additionally, senior scholar mentors across all three research bootcamps indicated high averages regarding the training provided to them to prepare them for the experience. These data will continue to assist in the improvement of training components for the CRM Continuum, particularly in evaluating best practices.

Significance and Conclusion

“Culturally relevant” and “culturally responsive” have been cited in the literature as synonymous foundationally, but in practice, culturally responsive action focuses on strategies and practices, while culturally relevant action empowers to implement shared, equitable, and just strategies that directly impact quality of life. Therefore, the continuum of culturally relevant mentoring is framed to actively acknowledge cultural contributions, foster mentoring exchanges/alliances that embrace cultural competence, and create strategic dialogue of critical consciousness and equity to empower individuals. The framework presented here can be viewed as transformative and can have a critical impact on institutions’ programs, practices, and broadening participation in STEM. Further research studies of the FL-AGEP pathway program activities are expected to impact the collaborating institutions’ recruitment, retention, and matriculation of underrepresented women faculty into the professoriate. The implementation of the framework positions the FL-AGEP Alliance for alignment with the strategic and diverse goals for FL-AGEP Alliance institutions.

Acknowledgement

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Educational Administration; One University's Approach

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Bio:

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Who We Are

Nestled on top of a hillside in Southern California sits Orange County's best kept secret. At least that has been the common description of Concordia University, Irvine (CUI). Established in 1976 as a Lutheran University, CUI embarked on a quest to enthusiastically educate students in liberal arts studies grounded in Lutheran tradition. More than 40 years later, CUI continues to provide exceptional higher education distinguished by Christ-like service and academic excellence. With more than 24,000 alumni and an annual enrollment of approximately 4,000 students, CUI seeks to influence communities across the globe.

The Master of Arts in Educational Administration Program

Concordia University's Master of Arts in Educational Administration (MAEd) Program was first introduced in 1988. Since that time, the program has grown substantially to become one of the largest in the state. Modest marketing and word of mouth serve as effective tools for recruiting candidates. The stellar quality and superior reputation of the program are driven in part by the vision statement practiced within the School of Education (2021); "To be a distinguished school of education that attracts, equips and supports servant leaders for today's public and private schools." To ensure the aspirations of the above vision statement, the school of education adopted a mission statement which reads, "To prepare servant leaders who transform lives through innovative and exceptional educational practices to positively impact local and global communities." The Master of Arts in Educational Administration cohort-based program is designed to prepare future leaders in private or public K-12 education. Concordia University Irvine's program provides the opportunity for teachers to continue working while completing a graduate program as the content, pacing, and structure of the program were created by employing

adult learning theories (Knowles et al., 2020). A recent graduate student echoed this sentiment, “As a working mom, I can't imagine how I could have successfully completed a program like this without the support and structure of CUI and the professors. It was an enjoyable experience and I would highly recommend it to any family/friend/colleague looking to continue their education in any program” (SOE Exit Survey, 2020a).

Strategic Framework

The MAEd Educational Administration Program offers a standards-based curriculum that allows candidates to earn an administrative services credential while earning a Master’s degree. The framework combines state standards, learning outcomes, and performance expectations to build curriculum that meets the state’s credential requirements and university outcomes that align with our mission and vision statements. The program utilizes an organizational structure that emphasizes collaboration and teamwork to develop program curriculum and leadership experiences for our students.

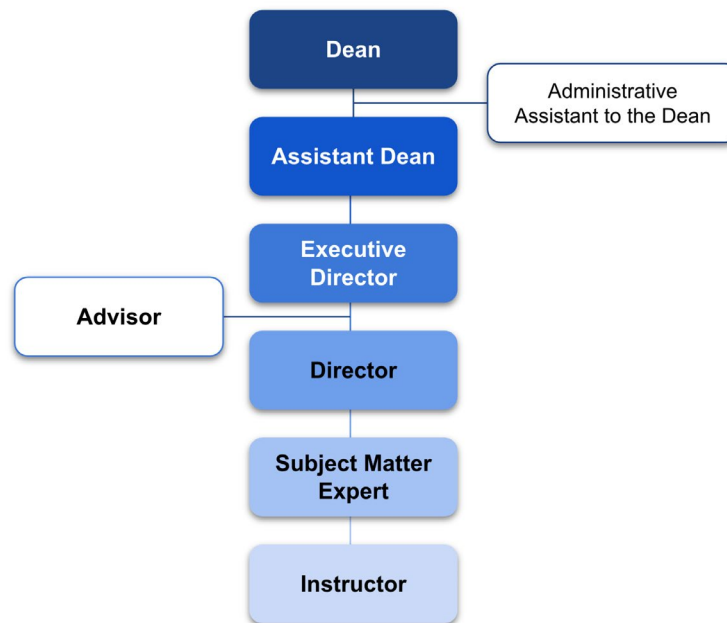
Organization Chart

The MAEd Program’s internal organizational structure (see Figure 1) consists of administrators, full-time faculty, adjunct faculty, and staff. The executive leadership (i.e., Dean, Assistant Dean, Executive Director, and Administrative Assistant to the Dean) are tasked with the main operations of the program, such as budget, event planning, payroll, student support, and other important tasks that would be taken to this level. The Director of the Educational Administration program is the point person for all matters pertaining to staffing, timesheets, professional development, curriculum, partnerships, and events. The Director collaborates with Subject Matter Experts (SMEs) to prepare courses and communicate information to the instructors. The SMEs are responsible for the curriculum in the course, supporting instructors

who teach the course, and maintaining the learning management system (LMS). The MAEd in Educational Administration program employs 3 full-time faculty, 3 staff members, and over 40 adjunct faculty.

Figure 1

MAEd: Educational Administration Organization Chart



University Learning Outcomes

Most universities around the world develop mission statements to create rich learning experiences for their students (Blewitt et al., 2018). Concordia University Irvine employs a mission-driven curriculum to create the Mission, Vision, and Values (MVV), which serve as the premise for developing curriculum that provides rich learning experiences for their students. The university learning outcomes are built from the MVV and serve as the overarching guide for developing the two levels of learning outcomes that follow: program learning outcomes (PLOs) and course learning outcomes (CLOs).

Master of Arts in Education students join CUI's graduate programs under the premise that they will be cultivated and educated according to the university's mission statement. "Concordia University, guided by the Great Commission of Christ Jesus and the Lutheran Confessions, empowers students through liberal arts and professional studies for the lives of learning, service, and leadership" (*Heritage | Concordia University Irvine, n.d.*). To this end, MAEd students begin their journey focused on giving back to the community and being of service to others. Upon entering the graduate school at CUI, students are exposed to the university's graduate learning outcomes (GLOs) which include "Integrated Learning, Ethical Leadership, Scholarly Research, Effective Communication, Reflective Practice and Community Engagement" (*Graduate Learning Outcomes (GLOs) | Office of Institutional Research and Assessment | Concordia University Irvine, n.d.*). Students then explore the program learning outcomes (PLOs) specific to the School of Education; "Integrate Instructional Design, Apply Disciplinary Competencies, Model Ethical Leadership, Exercise Informed Reflection, and Promote Active Learning" (*Purpose & Outcomes | MAED: Educational Administration | Concordia University Irvine, n.d.*). Under this framework, MAEd students begin their pursuit toward an education grounded in servant leadership. MAEd students are introduced to course specific learning outcomes (CLOs) at the beginning of each course. These CLOs are content specific; however, they carefully encompass the university and program learning outcomes. This triangulation of outcomes intentionally reinforces the mission of the university which lends itself to a world class education.

State Learning Outcomes

Within the state of California, School Administration is a credentialed program. As a result, the State Department of Education prescribes what candidates should know and be able to

do upon completing a graduate program. According to the California Commission on Teacher Credentialing (CCTC) (2018), school administration candidates in a Preliminary Administrative Services Credential (PASC) program must be able to successfully pass three specific performance assessments in order to be eligible for a California administrative credential. The three assessments are referred to as the California Administrative Performance Assessments (CalAPAs). These assessments are titled; Leadership Cycle 1: Analyzing Data to inform School Improvement and Promote Equity; Leadership Cycle 2: Facilitating Communities of Practice; Leadership Cycle 3: Supporting Teacher Growth. The CalAPA assesses candidates on their performance as it relates to the California Administrator Performance Expectations (CAPEs). The CAPEs clearly identify what candidates are expected to know when graduating from an approved administration program. There are six main CAPE standards which include several sub-standards; CAPE 1 Development and Implementation of a Shared Vision, CAPE 2 Instructional Leadership, CAPE 3 Management and Learning Environment, CAPE 4 Family and Community Engagement, CAPE 5 Ethics and Integrity, and CAPE 6 External Context and Policy (CCTC, 2017).

Concordia University Irvine, in an effort to align institutional and state outcomes, adopted the CAPE standards as program CLOs in 2019. This major adjustment, while timely, wholeheartedly improved the MAEd School Administration Program. Under this new approach, CAPE standards are either introduced, practiced or assessed in each content course. Candidates are provided multiple opportunities to study and apply the aforementioned standards as they appear in more than one content course. Every course has a detailed matrix identifying where the standards are embedded within the course readings, media, assignments and assessments. Each matrix is maintained and updated annually by the Subject Matter Expert (SME) for the course.

Subject Matter Experts serve as the custodians of the courses as they work to improve and update course content on an ongoing basis.

Instructional Design

The MAEd Educational Administration Program is intentionally designed to include theoretical and practical applications necessary for successful school administration in the state of California. The program includes five courses developed around critical areas of content: (1) human resources, (2) legal aspects in education, (3) financial resources, (4) instructional and transformational leadership, and (5) curriculum design and evaluation. The program also includes three leadership courses focused on preparing candidates for the California Administrative Performance Assessments. While students are completing their coursework they are also participating in the administrative practicum. The administrative practicum is a field based experience that spans multiple terms whereby candidates receive hands-on experience under the guidance of a veteran practitioner, also known as a mentor. Finally, candidates engage in three educational leadership symposia while enrolled in the program. The leadership symposia are delivered by locally and nationally recognized authorities in the field. One candidate praised the design of the program stating, “I really enjoyed the program so much that I am going to apply for the EDD program. I felt like I have gotten a lot out of the program and learned a lot from my peers/ professor/coursework. The structure of the classes are very beneficial . . . for working professionals” (SOE Exit Survey, 2020a).

Course Content

Content courses may be taken in any order as the program has rolling starts provided each term. The program is offered online or in a blended format. Course content is deliberately designed around critical areas; Development and Implementation of a Shared Vision (CAPE 1),

Instructional Leadership (CAPE 2), Management and Learning Environment (CAPE 3), Family and Community Engagement (CAPE 4), Ethics and Integrity (CAPE 5), and External Context and Policy (CAPE 6). As previously mentioned, the adopted course learning outcomes for the program mirror the state adopted California Administrator Performance Expectations. As a result, critical content is studied in each course and candidates are immersed in those standards determined to be the cornerstones of effective administrative practice. One candidate's remarks highlighted the value in this, "Content of the course somehow mirrored exact real life experiences that I was going through in my district" (SOE Student Evaluation, 2021). Expert practitioners are vetted and trained as instructors according to their areas of expertise. A purposeful attempt is made to contract California school administrators currently employed in their areas of expertise.

CalAPA Courses

Alongside the adoption of the California Administrator Performance Assessments (CalAPA) came the implementation of enhanced coursework designed to prepare candidates in the three critical state assessment cycles (Ojeda et al., 2019); Leadership Cycle 1: Analyzing Data to inform School Improvement and Promote Equity; Leadership Cycle 2: Facilitating Communities of Practice; and Leadership Cycle 3: Supporting Teacher Growth. Under the expertise of the CalAPA Coordinator, three leadership courses were developed to bridge the gap between existing course content and content necessary for successfully understanding and performing the required assessments. Instructors were hand selected to teach the CalAPA leadership courses based on merit. Students frequently speak to the quality of the instructor in their course evaluations, "Dr. X did a fantastic job supporting us throughout, by enhancing our current strengths and supporting us in practically applicable ways in our areas of need for

growth. Dr. X was always available for support, answering questions and the collaboration with our peers was an essential component of this course” (SOE Student Evaluation, 2021).

Mandatory ongoing instructor training and mentoring are provided to make certain expectations and requirements are fully adhered to. In those rare circumstances where a candidate may not perform well on the assessment(s) remediation opportunities have been carefully adopted whereby individual students receive additional instruction and support from CalAPA instructor(s) trained in best practices aligned with the cycle assessment.

Practicum Experience

Students enrolled in the traditional MAEd Educational Administration Program typically take one content course (3 units) along with one practicum section (1 unit) simultaneously for six of the seven terms. During the remaining term students are enrolled in two content courses, but no practicum sections. This workload affords students the opportunity to dive into one curricular area of focus at a time while also gaining authentic practical experience at the site level.

University supervisors and veteran practitioners at the site level work to support and mentor candidates enrolled in the practicum. Candidates develop an individualized *Planning Document for Practicum Experience in Educational Administration* in collaboration with the veteran practitioner and the Concordia University practicum supervisor. The planning document is developed around the CAPE standards (CCTC, 2017) to identify those site and district-based activities that will be completed to gain practical experiences in administrative responsibilities. A log of hours is used to record the total hours of practicum experience which is 100 hours minimum. One candidate commented, “The log of hours holds us accountable for putting ourselves out there and gaining experiences in many settings” (SOE Student Evaluation, 2021).

Digital Portfolio

One key component of the practicum is the creation of a digital portfolio. Candidates initially begin creating their portfolios during the first term of the practicum and continue to build upon this work throughout the duration of the practicum. The digital portfolio provides the candidates with a tangible finished product that can be used to highlight accomplishments within the practicum as well as professional experiences. The digital portfolio houses items such as resumes, letters of recommendation, reflective blog posts, authentic experiences surrounding the CAPE standards and other awards and accomplishments specific to the individual student. The Association of American Colleges and Universities identified the creation of student electronic portfolios as a “high impact” practice that positively supports student achievement (Watson et al., 2016). Candidates in the MAEd have autonomy in designing and generating digital portfolios that positively reflect their unique gifts, talents and experiences. Upon completing the program graduates may share their online portfolios with potential employers with the click of a button making applying for advanced employment seamless. Since its inception this product continues to receive rave reviews, “I feel like it prepared me not only in learning and taking on the hands-on experience of being an admin at a school site, but it also helped in preparing ALL necessary documentation needed for applying for or getting ready for an admin position” (SOE Student Evaluation, 2021).

Symposium

Educational leadership symposia strengthen the MAEd program as renowned educational experts are invited to share engaging presentations focused on current trends and applicable research. Symposia are delivered at pivotal points in the fall, spring and summer as a means of re-energizing candidates to remain motivated and encouraged. Each symposium is held on a Saturday morning at the university campus from 8:00am until noon. Candidates attend in person

or virtually. Complimentary breakfast and/or lunch is provided as a hospitable gesture for participants. The event is ushered by the School of Education including the dean, directors, faculty and adjunct instructors. The symposia events consistently receive accolades from candidates and stakeholders alike. One student expressed the following, “ I truly loved every moment of the symposiums both in person and then through the Zoom platform. They were all pertinent and fantastic” (SOE Exit Survey, 2020a).

Best Practices for Program Success

It is important for organizations to have a focused approach at attracting, equipping and supporting strong instructors and candidates. Two avenues CUI uses for accomplishing this include; (1) hiring and supporting the best instructors and (2) providing enhanced student opportunities.

Hiring and Supporting Instructors

The MAEd program seeks experienced and active administrators in the field. Most of the instructors in the MAEd Educational Administration program are adjunct faculty who hold a CA Administrative Services Credential and are currently serving in a fulltime K-12 administrative role. Our instructors are school principals and district-level administrators, including school district superintendents. It is critical for our students to learn from experts in the field who hold rich and current knowledge and experiences. It is our goal to provide students with exposure to leaders in the field in order to build their personal learning and professional network. Candidates appreciate the level of professionalism instructors bring to the program, “This program was amazing! I truly loved the high rigorous academic expectations with a balance of personability. The professors had impressive knowledge regarding the content being shared and expected with feedback on discussion board posts as well as the assignments. During the professor’s lectures

there was a realization of where we were at in the program and what we needed to hear to be both encouraged and challenged. This program did set me up to be a competent and understanding principal one day” (SOE Exit Survey, 2020b). Participation in our thorough onboarding process assists instructors in successfully navigating the online teaching environment including expectations, policies and procedures.

Professional Development

Professional development opportunities are intentionally designed to focus on the overarching mission in general and particular learning outcomes specifically. Ongoing professional development willfully broadens an instructor's knowledge, thereby benefiting the university and the student body. MAEd instructors attend two, 90-minute-long professional development meetings per year. Each meeting is crafted to provide faculty with a faith component, information, instruction, collaboration, and acknowledgement.

Professional Development meetings are designed by first bringing our shared faith at the forefront. Meetings begin with a devotion and prayer, followed by introductions of new faculty, staff, and presenters of the evening. A brief MAEd news update provides information that is beneficial to the group, followed by instructional activities to gain knowledge in areas such as andragogy, communication, teaching expectations, technology, writing/APA skills, and other desired topics as voiced by the faculty. The MAEd Professional Development meetings always end with an acknowledgement of excellence for selected instructors.

In addition to the professional development meetings, instructors are evaluated once every two years, and in some cases one time per year, in what we call the Instructor Professional Development (IPD) review. The procedures mirror a formal evaluation; however, instructors are provided with feedback to endorse their excellence in teaching as well as constructive feedback

in order to provide opportunities for growth. The evaluations are considered professional development in nature rather than a punitive system for retention. When instructors are struggling with their teaching practice, they are referred to the onboarding process to refresh their knowledge and skills. The IPD process has been instrumental in supporting instructors with technological skills, writing development, instructional effectiveness, and content knowledge to promote an excellent learning experience for students.

Subject Matter Experts (SME) Support

The School Administration program employs Subject Matter Experts (SMEs) for each course. The SME provides instructors with training that is backed by an expert who holds a breadth of knowledge and institutional experience (Ludwig & Owen-Boger, 2018). This knowledge is transferred to the instructor to support content delivery, anticipated student questions, and overall guidance with facilitating the course. This information is provided to instructors through a SME video, which is uploaded to the course's Instructor Area in the LMS. Instructors also have access to a google resource folder that houses all pertinent documents related to each MAEd course. There are four courses in the MAEd Educational Administration program that go beyond providing a SME video due to the rigor and complexity of the course. The CalAPA courses and practicum experiences require instructors to attend a 60-minute-long preterm meeting to discuss course content and teaching procedures. The SME serves as a resource for the instructor from course preparation through final grading.

Partnerships

Key elements of practice within the MAEd program include practicum partnerships with schools, districts and surrounding communities focused on meeting the diverse needs of stakeholders. Relationships are fostered in support of growing educational leaders empowered to make transformational changes in support of teaching and learning. Students are required to investigate current educational trends impacting all students within their disciplines. This is done via student research and conferencing, thought provoking inquiry-based discussions, collaborative efforts, case study scenarios, educational symposiums, interviews, ongoing professional feedback, as well as reflective activities. Under this umbrella issues impacting social justice are deliberately addressed including personal and institutional bias, equity and equality within educational settings, educational policy and procedures and diverse student populations. CUI's MAEd Educational Administration Program is intentionally designed to promote a positive culture that is both timely and relevant to 21st century learning. According to former secretary of education Arne Duncan (2009) "Education is the civil rights issue of our generation . . . Great teaching is about so much more than education; it is a daily fight for social justice" (para. 10). Concordia University Irvine is committed to preparing administrative candidates for current and future educational settings.

Association of California School Administrators Partnership

The MAEd Educational Administration Program at Concordia University Irvine recognizes the value of partnerships in strengthening the learning experience for candidates. One partnership that enhances the student experience and overall quality of the program is the partnership with the Association of California School Administrators (ACSA). A special benefit our candidates appreciate while in the admin program is their CUI sponsored Association of California School Administrators (ACSA) membership. The partnership with ACSA has resulted

in countless opportunities for students to grow professionally, including professional development opportunities, networking events, and educational lobbying efforts in Sacramento. Concordia University administrative candidates have the opportunity to participate in CUI's Student Charter functions as well as take advantage of their local ACSA Chapter regional offerings. Each month CUI's ACSA Student Chapter hosts a professional development workshop featuring a guest speaker who is employed as an administrator within the state. Workshops such as this provide a direct outreach into local districts and assist in strengthening and supporting the work between school districts and the university.

Clear Administrative Services Credential (Tier 2) Partnership

The state of California has a two-tiered credential structure, where the credential holder obtains a 5-year Preliminary Services Administrative Credential (PASC) (Tier 1) and begins a commission approved induction program towards completion of the Clear Administrative Services Credential (CASC) (Tier 2) during the first year of an administrative position (CCTC, 2021). Therefore, the individual must meet three criteria to clear their PASC: (1) hold a current PASC; (2) successfully complete two years of full-time administrative experience in a K-12 public or private school and complete a commission-approved induction program with the program sponsors recommendation towards the clear credential.

Concordia University Irvine met the high demands for students seeking the CASC by partnering with the Orange County Department of Education (OCDE) to provide an induction program with the opportunity to complete a terminal degree. The School of Education's Doctor of Education program (EdD) has partnered with OCDE to develop a CASC "Crosswalk" to meet the induction program requirement. The crosswalk provides PASC recipients with continued,

advanced learning opportunities with a pathway to clear their Administrative Services Credential through doctoral coursework.

Content covered within the Ed.D.'s "Educational Administration" specialization aligns Ed.D. coursework with the eight leadership competencies for the State of California's Clear Administrative Services Credential. The 83-page Crosswalk agreement (Concordia University Irvine (CUI), 2019) embeds the SPSELS standards with eight doctoral level courses. By aligning the California Professional Standards for Education Leaders (SPSELS) with the Ed.D.'s course descriptions and Course Learning Outcomes (CLOs). The CUI/OCDE Induction Program partnership requires students to be accepted into the EdD program, complete the eight courses, and pay for the induction coach. There are no outside courses required. This partnership has proven to be highly beneficial for our administrator students who are seeking a pathway to clear their credential while obtaining a terminal degree.

Areas of Opportunity

The MAEd Educational Administration program has seen tremendous growth and improvement since its formation decades ago. In an attempt to pursue excellence data is collected from course evaluations, entrance and exit surveys, completer surveys, state assessments, and graduation rates. Data analysis of the many critical voices, such as administrative candidates, instructors, and critical partners, have informed leadership's decisions and led to an outstanding education for future leaders.

Data-Driven Approach

In CUI's School of Education, leaders take a data-driven approach to solving problems and making research-based decisions. Dearborn and Swanson (2018) defined "design thinking" as their data-driven approach to resolving problems and creating solutions; "problem-solving

from a human perspective, with the goal of creating solutions that combine feasibility, viability, and desirability” (p. 30). In using these three elements, empathy and support for our students are at the center of the data we collect. The School of Education applies the design thinking approach with community and student needs at the forefront of the decision making. When designing new programs and curriculum, such as a recent redesign of the Educational Administration Program to support students with CalAPA, we consider the feasibility, viability, and desirability by asking important questions. Do we have the resources and means to develop and implement the changes/improvements? Are the changes made meeting the desires and needs of the community? Will these changes promote success for our students? The Educational Administration Program collects data to inform on our program’s marketability, educational effectiveness, community needs, and graduation rates.

Concordia University Irvine conducts market analysis of current and prospective programs to provide relevant degree programs, credentials, and certificates to K-12 educators. The analysis looks at the current needs in K-12 education, the competition, the value, and the economic environment, among other factors. Along with this data, our marketing team collects qualitative data from prospective students, which informs us on competition, needs/desires, comparative costs, and other factors that would attract students to, or away from, our programs. Additionally, faculty learn what is working at other institutions by attending inservices, trainings, and conferences. The knowledge gained and collaboration opportunities with colleagues across California provides information for improved academic pathways for our students.

Survey Analysis

Surveys are collected at the beginning and at the end of the program to offer insight into the students’ experiences. Students are asked to complete an Admissions Survey, during the first

course in the program, to inform our practices beginning with the student inquiry, to the application and admission's process, and up to the start of their coursework. These surveys have provided important data to help CUI improve in all areas of admissions, including marketing, the application/admissions process, advising, financial aid, IT support, and registration.

Exit Surveys are collected at the end of the program to learn about the students' cumulative experiences. This data is used as one of multiple instruments collected to evaluate three tiers of learning outcomes and state standards, and to document any gaps for future program improvement. Students are asked to state strengths and weaknesses of the program, as well as any other information that would provide invaluable data about the student experience. The Exit Surveys are analyzed through triangulation, comparing results with Student Course Evaluations and the state of California Completer Surveys to inform program improvement work.

Student course evaluations are a quantitative and/or qualitative instrument that are highly debatable and controversial, depending on its use (Gravestock & Gregor-Greenleaf, 2008). It is common for students to ignore the evaluations and not complete them at all, or quickly complete them without much thought (Charbonneau, 2013; Gravestock & Gregor-Greenleaf, 2008). It is important for instructors to provide the purpose and rationale behind the evaluations, so students put more effort into them. Student course evaluations are summative when they are used for the purposes of personnel decisions such as hiring, advancement in rank, or an annual review (Gravestock & Gregor-Greenleaf, 2008). Course evaluations are also used as formative assessments to inform on program improvement and teaching effectiveness.

In CUI's School Administration Program, course evaluations are used for all the purposes mentioned above. The evaluation is one of many measures used to determine a faculty member's

advancement in rank or an adjunct's retention to teach in the program. It measures the teaching effectiveness and instructor's behaviors, as well as the student's perspective on curriculum and course design. The administration within the School Administration Program uses the evaluation as a measure for annual reviews and as a means to start a conversation about teaching performance. The evaluations provide timely feedback for program improvement. The Director shares qualitative feedback with the subject matter experts to make curriculum and design decisions.

California Administrator Performance Assessment (CalAPA) Passage Rates

The past two years have seen numerous revisions to the assessment and scoring rubrics, which have impacted programs by requiring quick modifications to the curriculum. CUI's CalAPA pass rate is well aligned with the state average at 98%. The 2% of students who have been unsuccessful with passing the CalAPA during the first attempt provided a great deal of information about what needed to be improved upon in the CalAPA courses. The remediation plan in place will provide students with the support needed to successfully pass the CalAPA, with the goal of achieving a 100% pass rate among active students.

Graduation Rate

Concordia University Irvine's School Administration Program is a highly sought after program in Southern California. Data collected from the 2016-2017 academic year showed Concordia University issued 263 administrative credentials; the 2nd highest number of administrative credentials out of 15 private universities in the Southern California area. CUI attributes this success to the mission, vision, and core values embodied in the program, which are faithfully carried out by expert instructors.

In 2019-2020, the world experienced a pandemic like no other. Compared to the previous year's spring semester, CUI had a 46.67% decrease in enrollment in the same semester of 2020. Of the 99 students who started the program in 2019-2020, 84.8% have graduated. It is anticipated that the percentage of graduates will rise at or above the previous year's graduation rate, once the final numbers from the 2020 cohorts are documented. Overall, the graduation rate between 2017-2020 is currently at 87.5% and expected to grow.

Final Thoughts

Concordia University Irvine's approach for the MAEd Educational Administration Program with the Preliminary Administrative Services Credential has proven to be successful in providing future administrators with a quality education. The university and school's mission, vision, and core values guide the learning outcomes to provide students with excellence in education and a degree they can be proud of. The program curriculum, design, leadership and networking opportunities are a recipe that has proven to be successful among our graduates. Our program has received accolades from various institutions of higher education, and we value the collaboration and sharing of ideas, in support of the betterment of all future K-12 educational leaders.

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Using Peer Mentoring to Facilitate Culturally Responsive Research Experiences for Undergraduate Pacific Islander Students

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Abstract: This study addresses issues related to the underrepresentation and lack of persistence of Pacific Islanders in STEM fields by using, as a case study, the experience of two undergraduate researchers, both of Pacific Islander descent and upbringing, who navigated their own engaged participation as apprentices in a STEM education research project. The apprentices participated as members of a research team for the period of a year and were involved in the development, implementation, and analysis of culturally responsive research protocols. Throughout the process the apprentices produced personal narrative reflections on their own cultural identities and understandings and relayed their experience of being participants in the research project. The results indicate that as a result of their engagement in this apprenticeship model for undergraduate research experiences (URE) the student apprentices gained a deeper awareness of respect as a core value in engaging in culturally responsive research. It also caused them to reflect on the importance of their own ancestral roots, life experiences and cultural identities, including a deeper appreciation for how science is practiced in their home communities. Lastly, this apprenticeship URE model draws from traditional ways of learning in many Pacific Islander cultures and as a result, resonated with them culturally in that it reflected a particular way of learning they were familiar with. We argue that such insights can be used to better inform education programs and employers about the unique factors that influence Pacific Islanders and other Indigenous peoples so that they can provide opportunities that are seen as relevant and meaningful.

Introduction

Building and maintaining a diverse and inclusive scientific workforce is essential to the continued economic prosperity and international competitiveness of the United States (NAS, 2007; USDHHS, 2015). Despite decades of efforts and national goals emphasizing recruitment and retainment of women and underrepresented minorities in science, technology, engineering, and mathematics (STEM) fields, data show a clear pattern of continued underrepresentation by gender and race or ethnicity (NSF, 2017). Engagement in undergraduate research experiences (URE) is one of the pathways that has been increasingly seen as effective in recruiting and retaining students of diverse backgrounds in STEM fields (Russell et al., 2007; Linn et al. 2015; NAS, 2017). Some research in this area has indicated that engagement in URE can enhance the

educational experience of science undergraduates and act as a pathway for minority students into STEM careers (Lopatto, 2004). However, there are a wide variety of URE models documented and links between specific aspects of these models and student outcomes lack compelling empirical support, particularly for students from underrepresented minority groups (URMs). For the United States to generate a talented, diverse, and inclusive STEM workforce, it is important to understand how individuals from underrepresented minority groups navigate these experiences academically and culturally. These understandings are particularly important in Oceania, where western science is often seen as a negative construct in conflict with Indigenous values. People Indigenous to this region descend from cultural heritages that are deeply rooted in the use of science and technology, yet despite this extensive history of scientific enterprise and achievement, today Pacific Islanders are drastically underrepresented in STEM fields (NSF, 2017). National STEM higher education data indicate that 27.7% of STEM graduates are underrepresented minority (URM) students; while the representation of Native Hawaiian and Pacific Islander (NHPI) graduates is reported at 9.4% (the actual figure is likely substantially lower, since the data aggregate Asians and Pacific Islanders into a single group) (NSF, 2017). A number of key factors contribute to this underrepresentation including colonial legacies of mainstream STEM fields that provide unequal access to opportunities, a historical lack of inclusion of indigenous perspectives and input on research conducted in the Oceanic region, geographic isolation, challenging socioeconomic realities, and a complex set of cultural and familial conditions that can position STEM careers outside of or at odds with Pacific cultural norms (Kaomea, 2001). For reasons such as these, contemporary models of higher education, especially in STEM, can be a source of alienation from family, community, and culture, thus leading to disparities in engagement and participation (Puniwai-Ganoot et al., 2019).

The research reported on in this paper was conducted as part of the NSF funded, Louis Stokes Alliances for Minority Participation (LSAMP) program which is designed to assist universities and colleges in diversifying the nation's STEM workforce by increasing the number of STEM baccalaureate and graduate degrees awarded to populations historically underrepresented in these disciplines, including African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, and Native Pacific Islanders. As a program funded by this historical grant, the Islands of Opportunity Alliance (IOA) works to serve 11 university and college campuses based across Oceania, including Hawai'i. The financial support for these campuses is primarily provided through funding to support undergraduate student research experiences for URM students. A wide range of STEM majors are represented in the student population supported by IOA funding including a variety of natural sciences, computer science, information technology, engineering, and mathematics. The IOA also supports Indigenous perspectives with concentrations in the STEM fields such as Hawaiian studies students who focus on issues related to environmental stewardship and restoration. However, across each of the IOA institutions, the most common majors of students supported are those that focus on environmental conservation in the fields of biology, marine science, and environmental studies.

The research aspect of the IOA project is designed to gain insight into the stories and lived experiences of IOA supported students as they work to pursue degrees in STEM fields. A better understanding of the reasons they pursue these degrees, what their goals are for the use of their degree, and the challenges and successes they encounter in their academic journey can help provide insight into how to best support them academically. For the pilot version of this study, two undergraduate students, each of Pacific Islander descent and upbringing, were recruited into the project as both research apprentices and research participants. In their role as research

apprentices, the students collaborated with faculty mentors to design, conduct, and report on a piloted version of the ethnographic STEM education research study described above. In their role as research participants, the students provided their insights and reflections into their own academic journey and how they experienced participation in a pilot version of the apprentice model URE designed for this project. This paper specifically addresses what was learned from the reflections of these two student apprentices about how this apprentice model URE might be best designed to support URM students from Oceania. The research questions include: 1) What are the apprentices' reflections on their own cultural values and visions of success as they relate to their academic goals? 2) What are the apprentices' reflections on their engagement in a culturally responsive URE?

Literature Review

The two most widely employed URE models include course-based undergraduate research experiences (CURE) and *apprentice model research experiences* (Auchincloss et al. 2014). The primary difference between the two models is that CURE are generally completed by small or large groups of students who engage in a discovery-based project as part of the work of a formal course or sequence of courses, i.e. a capstone project. Experiences such as these are designed to familiarize undergraduates with the general practices of STEM fields including discovery, collaboration, iteration, and pursuit of broadly relevant or important work (Auchincloss et al. 2014; Brownnell & Kloser 2015). The *apprentice model* URE is generally used to engage a single student or small student groups in working closely with a faculty mentor on a research project outside of a traditional course (Zupanc 2012). Research experiences such as these are generally designed to enhance students' understanding of the nature of science, increase their content knowledge and ultimately support them in learning how to conduct research. We define the URE model designed in this project as an *apprentice model of undergraduate research* and not a CURE because, while we do provide college credits for eligible apprentices, it is as a means of providing reciprocity for the time and effort invested by the apprentices and the work conducted is outside the realm of any formal university course.

While there are a wide variety of apprentice URE models documented, most of them share the key characteristics of engaging undergraduates in authentic scientific practices and discovery, and establishing some version of an apprentice-style, mentored relationship with a faculty member (Seymour et al. 2004; Sadler et al. 2010). URE models that include these characteristics are widely accepted as providing high-impact experiences which can improve academic performance and persistence in STEM careers (Russell et al. 2007; Kuh 2008; Graham et al. 2013). Current research on the impact of apprentice URE on student outcomes has indicated a variety of other program features that can potentially impact students in positive ways. Russell, Hancock, and McCullough (2007) found that deeply immersive experiences such as working in a laboratory, co-authoring a paper, attending professional conferences, or mentoring less experienced students resulted in greater student gains than experiences with less immersive engagement. Thiry, Weston, Laursen, and Hunter (2012) found that longer research experiences are more impactful than short ones and Hanauer, Frederick, Fotinakes, and Strobel (2012) found that involving undergraduates in the design of the research project can foster greater feelings of ownership and motivation in the project. However, by far the most impactful aspect of a URE experience seems to be the nature of the mentoring that occurs. Numerous case studies illustrate the central role of mentoring in the development of emerging researchers (Bennett et al. 2013; Healy & Jenkins 2009; Santora et al. 2013; Laursen et al. 2010; Pacifici &

Thomson 2011). These studies have shown that effective research mentoring relationships can increase undergraduate student interest and preparedness for STEM careers, can help them in making informed decisions about pursuing graduate degrees and research careers, and can help them begin to define their disciplinary identity. However, despite the research on the benefits of mentored experiences, little is known about the impacts specific mentoring features have on a research experience, and there is even less information on how specific features of URE mentoring activities impact students from Pacific Islander cultures. In developing the *IOA apprenticeship URE model*, we worked to integrate the research supported features of immersive, long term, mentored research experiences that include undergraduates in the process of developing the methods of the study, while also paying careful attention to the cultural protocols and mentoring practices of a variety of Pacific Islander cultures. In doing so, we hoped to develop a URE model specifically designed to meet the needs of undergraduate students from Pacific Islander cultures.

The IOA Apprenticeship Model URE

In addition to the accepted design features described above, there were three additional features integrated into the design of the IOA apprenticeship model URE that were intentionally implemented to support our Pacific Islander apprentices and the overall research project. Each of these features was designed, integrated and modified when necessary, as part of our collaborative work with the student apprentices who contributed a great deal of insight during this process. These features included, 1) the recruitment of student apprentices who were from or familiar with the contexts included in our study and had an interest in addressing the needs of those communities, 2) positioning the apprentices as equal contributors with valuable intellectual and cultural contributions to the project, and 3) to establish a peer mentoring expectation from the more experienced apprentices. Each of these features is described in additional detail below.

The intent of the overall research project was to collect stories of Pacific Islanders who are pursuing STEM careers so that we might better understand how to better design education programs and courses to better match their needs. However, we also recognize that these cultures have distinct cultural practices and social expectations and, in many cases, have also been historically subjected to severely unethical research (see Smith 1999 for examples). As a result, there were two overarching goals that guided the design of the IOA apprenticeship URE model and the overall research study. The first goal was to conduct ethical and responsible research within a region that includes a wide variety of Indigenous populations and cultural traditions. The second goal was to develop a URE model that students from the Pacific Islands would find valuable and beneficial to their career. From our perspective, these two goals were intricately intertwined. The ethics of our approach were based, in large part, on the authentic, deeply emersed participation of student apprentices who were from, or deeply familiar with, the cultural backgrounds of the participants in the overall study. This approach allowed for the consideration of a wide variety of factors that might influence what a participant is willing to share or how we might interpret the data collected.

Given the culturally and linguistically diverse area, and the fact that the region has culturally shaped forms of respect and deference, modes of communication, and prescribed gendered interactions, we decided to involve two students as apprentice researchers during the inaugural semester of the project, providing a depth of cultural and gendered experiences. The male apprentice was an Anthropology major, is Yapese, and grew up spending time on Yap, Pohnpei and Palau. The other apprentice was a female Environmental Studies major, is Palauan

and grew up spending time in Palau and Hawaii. Both students are fluent in multiple languages and spent time in multiple different language speaking communities. The female apprentice had some prior research experience interviewing Pacific Islanders in the context of another study. The male apprentice had no prior research experience but as an Anthropology major, had considerable knowledge of Pacific Island research protocols and issues related to the responsible conduct of research. As part of the requirements of the Institutional Review Board (IRB) approval process, both apprentices successfully completed multiple certified courses on the responsible conduct of research involving human subjects. They also completed readings, engaged in discussions, and wrote reflections on a variety of topics including the nature of ethnographic research, informed consent, and research ethics and protocols specific to the Oceanic region. The research training for the interviews included observing a faculty member conduct an interview, conducting an observed practice interview and getting immediate feedback, and then conducting an unobserved research interview after which they got delayed feedback. After this initial training process, the apprentices proceeded to conduct multiple interviews on their own and received feedback only when it was deemed necessary for their learning or for the benefit of the quality of data collected. The apprentices transcribed the interviews they conducted, developed and refined a coding framework for the data, established inter-coder reliability, coded the data, provided a summary of their findings, and eventually presented their findings to a broader community of scientists and students through a conference presentation. The role of the faculty researchers in this process was to organize each semester into 16 productive weeks, facilitate weekly meetings, provide relevant readings and materials, identify participants for the interviews and tend to the administrative details of the project. The role of the peer mentors in this approach was to develop and implement their own approach to supporting new apprentices as they learned about and engaged in the work of the project, engage in the work of the research project themselves, and provide reflective writings on their experience with both.

As part of the apprenticeship, the students earned course credit and received stipends for their engagement in the project--direct means of supporting their academic and career goals in addition to providing them with research experiences. The two apprentice researchers were recruited into the study as both researchers and participants at the very beginning of the project and worked as full members of the research team throughout their engagement in the project. In choosing apprentices that shared similar cultural backgrounds as the individuals participating in the study, we hoped to avoid cultural and ethical infractions and increase the potential that this study would yield meaningful results that benefitted individuals from these populations. In addition, the apprentices chosen were not only familiar with the lived experiences of Pacific Islanders pursuing STEM careers, they also had an interest in working to address the plethora of barriers to Pacific Islanders inherent in the currently available programs and career pathways. This approach positioned the student apprentices as contributors to the project who had valuable, authentic knowledge resources that were essential to the study. This project also provided the apprentices with an opportunity to authentically engage in a research project addressing an agenda that was meaningful to them. Our hope was that this design would result in meaningful, valuable research experiences for the undergraduates that was also ethical and responsible to the communities in which it is conducted. This inclusive approach is informed by the construct of Equitable Exchange through the co-production of knowledge (Harris et al. 2021) and literature on Boundary Spanners (Safford et al. 2017). Each of these constructs have a distinct focus on expanding research spaces to be inclusive of a more diverse range of individuals and

perspectives. Equitable Exchange through knowledge co-production offers a framework for shifting the production and dissemination of knowledge away from the current unidirectional transfer of information from credentialed experts to the societal users of this knowledge and toward a broader exchange of knowledge between research communities and societal users (Callahan et al. 2018; Harris et al. 2021). This shift is designed to address ethical considerations in research as well as increase the quality and usefulness of scientific endeavors through the inclusion of a broader range of knowledge and perspectives. The literature on Boundary Spanners emphasizes the important role of individuals who straddle the boundary between information producers and information users (Safford et al. 2017). Such individuals have credible knowledge in both realms and as a result, can facilitate communication, translation, and mediation between multiple stakeholders in ways others cannot (Cash et al. 2003). These perspectives are useful in understanding the complex task of the apprentices as they navigated their simultaneous roles as researchers, students, and members of the communities in which they were collecting data.

The resulting year-long apprenticeship URE model was designed to both develop the apprentices' understanding of the research process, and to draw from their intellectual and cultural resources to inform the development of the model and design of the overall study. This reciprocity of knowledge resources between faculty mentors and student apprentices was another one of the essential features of our efforts to expand on the current paradigm of impactful features of URE models to include features designed to better serve students from Oceania. While some cultural practices honor the transition from apprentice to expert through a ritual experience (such as apprentice navigators receiving a navigator's title, see Genz 2018), some cultural practices and styles of learning are less hierarchical, and support reciprocal sharing of knowledge. This is reflected in the Hawaiian word *a'o* which means both "to learn" and "to teach." This latter approach is reflected in our own model in that the apprentice researchers (undergraduate students) learned ethnographic interviewing techniques through observation and hands-on experience while at the same time contributing their own knowledge and insights as we worked to adhere to Pacific-based cultural protocols, develop culturally appropriate methods of interviewing, carry out the fieldwork by conducting interviews, analyze data, and report on findings.

Student learning in this URE model is structured within an expert-apprenticeship model that also mirrors traditional ways of learning. Across Oceania many cultural traditions are passed on this way, such as weaving, traditional medicinal knowledge, and canoe building (Genz 2018). In these traditions, the student often forms a close apprenticeship with a culturally recognized expert. Keen observation, listening to stories, and hands-on experience are critical in a traditional Pacific apprenticeship. Just as a traditional practice in the Pacific may have a learning cohort with various abilities, we introduced the framework of the returning apprentice to serve as a peer mentor to the next research apprentice. This is another feature of our apprenticeship URE model that was intentionally designed to support our Pacific Islander apprentices. By positioning the more experienced apprentices as peer mentors, we hoped to mirror cultural practices of the Pacific by providing them with the opportunity to learn from teaching their less experienced peers. We also hoped the less experienced peers would benefit from the opportunity to learn from a peer who has recently been through the same learning process.

Methods

This research applies a methodological approach that recognizes and is informed by the cultural protocols of the Pacific Islander communities with which the research agenda is concerned. For many decades, Indigenous peoples of Oceania have suffered from the consequences of some of the most destructive aspects of colonization and modern development. They have had their ecosystems and ways of life infringed upon, been deprived of their means of livelihood, and forced to fit into societies that do not value their knowledge and culture. Because of these historical traumas, conducting research in Pacific Islander communities requires a great deal of cultural sensitivity to a variety of Island cultures, each of which has its own values and protocols. For example, the University of Otago, New Zealand published “Pacific Research Protocols from the University of Otago” as a means of documenting the protocols adopted by the university as a means of ensuring that true equality is engendered and reflected in research projects addressing Oceanic communities (Bennett et al. 2018). The Australian Institute of Aboriginal and Torres Strait Islander Studies created the Guidelines for Ethical Research in Australian Indigenous Studies (2012) which stated that Indigenous people have fundamental rights and that the protocols outlined need to be followed to ensure that the stories are not misrepresented by those who know less about the culture and community. Protocols such as these have been designed to aid in the decolonizing of research methods and for the betterment of the Indigenous people being represented (Smith 1999). This project worked to adhere to the protocols outlined in these documents in all aspects of the research study and mentoring activities by using as the foundation of our approach, principles such as informed, consensual participation, community involvement, community benefit, reciprocity, and respect.

For the study reported on in this paper, we focused on better understanding the student researchers (i.e., apprentices) as integral members of the research team, and we focus on the project experiences and resulting reflections of two undergraduate students who co-developed the apprenticeship model, were integral members of the research team and worked to peer mentors to a new student apprentice. Because the apprentices were Indigenous Pacific Islanders themselves, drawing from their own cultural backgrounds allowed for more culturally aware and responsive methods of information gathering as it applied to the interview contexts included in this study. Cross-cultural research of this nature promotes the use of qualitative data such as story, narrative, and conversation, which are compatible with Indigenous oral traditions privileging both individual and collective voices and providing rich data that can be used in meaningful ways (Sukop 2007). Drawing from Vaioliti’s (2006) Tongan research methodology of *talanoa* (“conversation, talk, exchange of ideas or thinking”) and being responsive to Pacific protocols of conducting interviews (Bennett et al. 2013), the ethnographic interviews were designed to reflect each culture’s effective means of communication.

The data collected include reflective writings completed by the apprentices before, during, and after participation in the project. Also included in the data are weekly research meeting notes recorded by one of the faculty members. Each week the apprentices were provided with reflective prompts specific to the research activities of the week. The progression of weekly topics included reflections of science and culture in Oceania, anthropology and STEM education research, informed consent, ethics and protocols, ethnographic interviewing techniques, transcription, and preliminary analysis through the development of a coding scheme (Hussein et al. 2014). The apprentices were also asked to respond to a series of prompts before engagement in the study and again at the completion of the study. These reflective writings were collected as a means of gaining insight into how they experienced participation in the research project and the cultural insights and understandings they reflected on while participating. It also allowed for the

identification of impactful points in the research process and how the apprentices responded to them. These data were analyzed through a reiterative open-coding process in which we identified common themes between the participants as well as notable individual responses. Intercoder reliability was established through the comparison of individual coding from each of two faculty and two student team members. Discrepancies in coding were discussed and recoded as necessary. Throughout this process the two apprentices/research participants were provided opportunities to expand, clarify, and/or revise their contributions to ensure their intended meanings were accurately portrayed. As informed research participants and members of the research team, the apprentices were also included as decision makers about what content should be included, how their words should be interpreted and how to interpret non-English words and phrases. They also provided critical insights into the contexts in which certain cultural words and phrases are generally used and other cultural nuances represented in the data.

Results

Apprentices' Reflections on Their Own Cultural Values and Visions of Success as They Relate to Their Academic Goals

In reflecting on the cultural values and visions of success that drive their academic goals, both apprentices clearly expressed culturally grounded career interests that are deeply rooted in a sense of responsibility and commitment to their home communities as well as the land and its natural resources. In reflecting in writing, one apprentice articulated his reasons for pursuing a degree and what he hopes to do with it:

In Yapese we have a saying that goes "*the land is chief, not the person with the title*". So your name is the direct link between you and the land and also it is what links you to your obligations and commitment to your village or "*binaw*". The word for commitment in Yapese is "*luung*". *Luung* also means voice, so "*luungun e binaw*" means the voice of the village, or the collective decision of the village. This "*luung*" is also found in "*piluung*" which means chief. *Piluung* literally means the people of voice. Although these stand out to be chiefs or a collective village, they also have an obligation to their community and part of existence means commitment. It is all about commitment and responsibility to the village. Before going out to school, any Yapese kid will be told "*Mu athamgil, ya fan ngodad*" by any elder they pass by. That saying literally means, "*persevere because it is for the benefit of all of us*". Do I feel like I have a commitment? Yes I do and I intend on going back home after I am done obtaining my education here to help. It is part of who I am. Success for me is basically being able to give back to the community, whether it is doing a study or just by being here to attend the weekly village community work on weekends. I think being able to give back in a beneficial way is success.

In her writings, another apprentice reflected extensively on her own sense of commitment and responsibility to protect the land and its resources:

We have this Palauan proverb called "*Belau a Koted*." This means Palau is where you came from. You were born from there and therefore, you must preserve it, use it, take care of it, now until the end of your days" In a deeper meaning, "*Belau a Koted*" means "Palau is our forefathers." It came from our ancestors a long time ago, and we shall always take care of it. The "*Koted*" word comes from "*Kot*" meaning first. So, we were

always reminded that Palau is the first and is our island. And we would always know that we are from there and that we are proud to be Palauans.

We wanted to be reminded that we put our island first, because without our island, we would not be there and so will our resources. Maybe it does relate to science? Because we will do whatever we can to help the community by preserving its beauty and landscape. Such help involves in volunteering through coastal clean ups, fundraisings, preventing climate change such as replacing plastics with paper cups, plates, and utensils in grocery stores, and banning the use of sun cream to save corals and the marine ecosystem. We cherish our trees, the birds, the fish, and everything that we need in our island, because that is the reason why we were called Palauans. This is our way of commitment, to respecting it.

We are drawn by the ocean and the ocean feeds us, and so we do have a responsibility in protecting it in any way that we can. I know a saying that my dad would tell us every time we went fishing. He would say, "*A ngelemkelem a diak om nguul el mo rucheira ngidil ngerang. Ke nguul a rengum el me er iou e omdasu ra rebebil er kau*" this would be translated as, "You will never put greediness ahead of anything. Be humble and think of others." And that is how we learned to take what we need instead of what we want when we went fishing.

In terms of fisheries management, the people of Palau believe in the traditional management systems. This system of designating "no-take zones" is a cultural practice that has existed in the islands for generations. This traditional practice is called "*bul*". Local chiefs are able to place "*bul*," or a taboo on certain fishing spots to help rejuvenate and replenish marine resources. This was based on the local chief's knowledge and cultural practices of resource management. Up to this day, the people of Palau continue to use this traditional custom however, it has evolved into a more Westernized practice.

As the eldest daughter of a small Palauan family, I have grown to love the environment as well as helping the community in every chance I get. I was inspired by my father who taught me that the only way to become a greater person was by protecting your marine environment. With that piece of wisdom, I became fonder of my island home as I promised to contribute in any way that I can. We still have canoe carvers, navigators, and strict cultural performances and ceremonies. It is this culture that brings about an environment of respect between each other, and communal living that sustains us. I want my children to have a strong pride of being a Palauan and a Pacific Islander as it is important for us to remember our roots. In addition, I want to create a new path for the younger generation to learn and follow my footsteps after succeeding in college.

For each of these apprentices, the purpose for pursuing an undergraduate degree stems from a strong sense of responsibility and commitment to their home community and its' natural environment. These findings inform our thinking about the design of the apprentice model URE used in this project in two primary ways. To begin with, the values expressed are culturally connected and communicated in ways that are highly nuanced and specific to each apprentices' home culture. For us, this means that to best serve the wide variety of cultures represented in Oceania, the apprentice model URE implemented in our project must be highly responsive to a

wide variety of values and academic goals. To accomplish this, we assert that it is useful to include in the design of the URE, a means of identifying the personal and cultural values that relate to each apprentices' academic goals. We believe doing so could provide insights critical to creating experiences in which the students feel their cultural values are respected and responded to.

It is also clear, that for these two apprentices, there is a strong desire to return home so that they can use their education to address local issues and positively contribute to their local community. We believe that for the URE used in this project to be truly successful, these academic goals must be considered. To accomplish this, we assert that there must also be a means of identifying the career goals of each individual apprentice, identifying employment opportunities in the contexts they wish to eventually work in, and then tailoring the URE to provide experiences that will prepare them to take advantage of those opportunities.

Apprentices' Reflections on Their Engagement in a Culturally Responsive URE

In reflecting on their experience engaging in a URE that was designed to be culturally responsive, the apprentices reflected on several key insights that can inform future iterations of the model. These insights include the recognition of respect as a core value in culturally responsive research, an increased sense of appreciation for their own ancestry and culture as a result of their engagement in the project, and an observed congruence between the apprenticeship aspect of the URE and traditional forms of learning in their home cultures.

Recognizing respect as a core value. Both student apprentices gained a deeper awareness of respect as a core value in engaging in culturally responsive research. They express the imperative to respect the participants' cultures, languages, and life experiences while establishing rapport.

Culturally responsive research is understanding people and respecting their cultures, languages, and life experiences. An example of this is when professors and instructors are able to learn and understand the different cultural backgrounds of the student that he or she teaches. You learn to communicate with them in a way that they feel comfortable. When it comes to Pacific Islander students, you can get the sense of respect. And because of that, we are able to relate despite different lifestyles and cultures from one another. One thing I have learned from engaging in a culturally responsive approach to research is to communicate in culturally relevant and suitable ways. This apprenticeship has made me realize that we need more educational research in order to fully understand the cultural aspects as well as trainings on cultural competence.

Also emphasized, was the importance of demonstrating respect through rapport with participants but stresses the practical outcome--that building an honest relationship between researcher and participant will allow for greater reciprocity in the benefits of the research.

While conducting research interviews, I have also come to appreciate the importance of building respect and rapport with participants and admired how building an honest and upfront relationship opens doors to wealthy traditionally scientific knowledge that students have. As a student who is looking forward to expanding and further my education and career experiences, I believe that culturally responsive approaches are

effective. I refrain from perceiving individuals and in this context, students, as variants of the same individual. Individuals respond to their basic human needs differently. Tending to those needs requires recognition that individuals are unique and intense collaboration with people we seek to help is a must.

A competently culturally responsive approach is one that allows participants to feel a sense of “belonging.” As social beings, this sense of “belonging” is a very important pan-human aspect. It is this sense of “belonging” that establishes the many founding factors of an individual's ability to fulfill their potentials, and this is exceptionally true in regard to communal societies like those of Pacific Island cultures. As a research member, I have come to realize that students struggle when they are unable to relate to curricular course material or even to classroom environments.

These reflections on the importance of respect and reciprocity inform our thinking about the design of the apprentice model URE used in this project by highlighting the importance of cultural competence when engaging in research that involves or in any way impacts indigenous populations. We found that understanding the cultural protocols and expectations of an individual or culture is essential when working to establish the type of rapport necessary for ethical research. The apprentice model URE described in this paper worked to address this issue by recruiting apprentices that were from, or deeply familiar with, the communities with which we were working and shared some similarities in terms of gender, age, and career stage. In instances when it is not possible to recruit individuals familiar with the communities or cultures included in the study, we believe that it would be useful to develop some mechanism for our undergraduate researcher apprentices to gain the cultural competency necessary to do ethical research before they engage in the study.

An Increased Appreciation for Ancestry and Culture. For both student apprentice researchers, the research project provided them with a space to reflect deeply on their ancestral roots. Their expressed cultural identities as Palauan and Yapese are evident in their writing and in conducting the interviews. For instance, in their opening remarks about the interview process and gaining participants’ consent, each of them begin with a statement about their own upbringing and ongoing connections to their home islands of Palau and Yap. Despite these existing cultural connections and identities, both apprentices reflected on how engagement in the process resulted in an increased appreciation for their cultural heritage and how it impacts their personal identity.

Reflecting on cultural experiences and cultural identities, I realize how important our culture is and how we are identified as an individual. Living on an island, you grow to appreciate everything that you have as an islander is from the teachings that your parents have taught you and that were passed down through their ancestors. It is passed through the family for generations to generations. Culture defines what you are and what you have become, and I have never been more proud of my island home and where I came from.

One of the apprentices also reflected on how he gained a deeper appreciation for the scientific grounding of his Yapese heritage, and specifically invokes the experiences of

renowned navigator, Mau Piailug (affectionately referred to as Papa Mau), who is from Satawal in the outer islands of Yap State in the Federated States of Micronesia:

I have come to recognize that my culture is in fact more “scientifically” grounded than I had previously expected, and I also have come to appreciate how much knowledge my culture has to offer the world. It has given me and my people a voice despite our size in this world. Papa Mau once quoted, “*If you forget how the Islands move, then you are lost.*” In relation to our research, I think this quote holds true. If you do not possess a place in the heart to reference/distinguish north from south and east from west, then you are lost. This research experience has given me a deeper sense of appreciation for my people and my culture.

One of the unexpected benefits of having the apprentices work in contexts that were relevant to them culturally was that it and resulted in an increased sense of appreciation for their own cultures and an increased sense of personal cultural competency. The apprentices spent a great deal of time talking with individuals about their culture and discussing cultural issues both in preparation for the interviews and in conducting them. This extensive time listening, discussing, and reflecting on cultural issues that were relevant to them clearly had a positive impact on their own cultural identities. We assert that the apprentices benefitted from this aspect of this URE model and believe it would be useful to continue this practice as well as expand it by creating additional opportunities for apprentices to expand on their own cultural understandings and competencies.

A Familiar Model of Teaching and Learning. Both student apprentices also reflected on how learning alongside their instructors reflected a particular way of learning typical in many Pacific Islander communities. They each describe this process and relate it to their own cultural upbringing:

From this apprenticeship model, it has taught me to become aware of the surroundings and the people that you communicate with. It is important to communicate and understand the teachings of this model. As you begin this apprenticeship, you learn to observe and understand the different ways of being an interviewer and an interviewee. This learning style is similar to islander’s way of teaching. We learn, observe, apply and pass it on to the next generation and so on.

I think this model worked for me. Initially, I would sit back and observe. As time passed, I was entrusted with more tasks and responsibilities. It depicts a typical islander's life, progressing and growing up in their home communities. Learning from observing and then proceeding into more “hands-on” experiences really got me grounded in the project.

One of the apprentices returned for an additional semester to serve as a mentor to a new cohort of apprentice researchers. This was quite challenging, because in many Pacific Islander contexts, and especially in Yap, a mentor guides a beginning learner through strict protocols of how knowledge is passed on (such as observing rather than explaining how to carve a canoe). But in the context of the research project, he was being asked to adjust his guidance based on the particular cultural backgrounds and personalities of the new apprentice researchers:

Being a mentor was a new experience. In all honesty, I had to re-evaluate and redefine what a mentor might mean to me and figure out a way to translate that to my peers in a manner that would fit their needs. I also had to put aside my cultural biases and help facilitate a learning environment that would benefit all. Usually mentoring in the islands does not involve direct communication. A “mentor” does not necessarily tend to needs verbally but guides apprentices through them. These are the things I had to understand in a way that is applicable to our research team.

The apprentice model URE described in this study was designed specifically for URM students from Oceania. This design had the dual goals of, 1) facilitating ethically and culturally responsible research in this region through the inclusion of culturally competent apprentices, and 2) facilitating a meaningful research experience for URM undergraduates from this region. In terms of goal #2, the apprentices’ reflections indicate that they felt they benefitted from the congruence they experienced between the approaches to teaching and learning employed in this model and the approaches used to pass on knowledge in their home cultures. The apprentice’s reflections on his struggles in having to adjust his own style further highlight the usefulness of this type of congruence. In terms of informing our URE design, these findings seem to validate our current design. However, this is one area we identify as needing additional study, particularly in terms of the impacts of the peer mentoring component.

Discussion

In a recent synthesis of the research on URE, the National Academy of Sciences (NAS), in collaboration with the NSF, described a need for more research into the impact of specific URE design features on student outcomes, particularly for students from diverse backgrounds (NAS 2017). The project reported on in this paper is designed to address this need by seeking insight into how two Pacific Islander students experienced participation in a URE model designed to support URM students from Oceania. The resulting *IOA apprentice model URE* included the research supported features of immersive, long term, mentored research experiences that include undergraduates in the process of developing the methods of the study. It also includes features designed to be reflective of cultural protocols and mentoring practices of a variety of Pacific Island cultures. These features included, 1) the involvement of student apprentices who were from or familiar with the contexts included in our study and had an interest in addressing the needs of those communities, 2) positioning the apprentices as equal contributors with valuable intellectual and cultural contributions to the project, and 3) establishing a peer mentoring expectation from the more experienced apprentices.

Through reflective writings about their reasons for pursuing STEM degrees, the apprentices each expressed culturally grounded career interests that are deeply rooted in a sense of responsibility and commitment to their home communities as well as the land and its natural resources. They also revealed three key impacts of their engagement in this URE model. First, the student apprentices gained a deeper awareness of respect as a core value in engaging in culturally responsive research. They express the imperative to respect the participants’ cultures, languages, and life experiences while establishing rapport. Importantly, they found that this can lead to a sense of belonging, which may enable participants to share more deeply their personal stories and experiences with science. Second, participation in the project facilitated the apprentices to reflect on the importance of their own ancestral roots, life experiences and cultural identities, and their reflections focused on a deeper appreciation for how science is practiced in

their home communities. Third, this apprenticeship URE model draws from traditional ways of learning in many Pacific Islander cultures (such as the primacy of observation) but is modified to accommodate student needs rather than strictly offering guidance. The apprentices' insights into how this design feature impacted their experience indicate that learning alongside their instructors resonated with them culturally in that it reflected a particular way of learning they were familiar with. In addition, for one of the apprentices transitioning from mentee to peer mentor caused him to reflect on the need to expand his own cultural competence to better account for the nuances of Pacific Island cultures other than his own. His reflections articulate a deliberate effort to look beyond his own needs as a mentee to account for the specific needs of his peers.

We believe the insights gained from this study can inform other URE models interested in better serving URM students from Oceania and beyond. In particular, this project benefitted greatly from the intellectual reciprocity established between the student apprentices and the faculty mentors. The student apprentices contributed a great deal to the development of the URE model and to the overall research project in which they were engaged. These contributions resulted in a research project that was more culturally responsive than it otherwise would have been, and a mentorship model that was designed specifically to address their individual learning needs and preferences. This was primarily made possible through deliberate efforts to position the apprentices as meaningful contributors to the project with valuable intellectual and cultural resources. We argue that other URE programs seeking to better serve URM students could benefit from this approach.

Conclusion

The NSF has clearly emphasized the need to build STEM capacity in the United States by increasing the number of URM students enrolling, matriculating, and graduating with STEM degrees. This study contributes to the teaching and learning in these fields by providing insight into the impacts of specific URE design features on the experience of two Pacific Islander students. An understanding of how students experience specific URE design features can help better inform the design of undergraduate STEM programs and research experiences so that they are more responsive to the needs and interests of Pacific Islanders and other URM students. This is particularly important [considering](#) the drastic underrepresentation of these populations in STEM fields. However, this study is limited in the number of participants included, which reduces the extent to which the findings can be validated, statistically or otherwise. Future efforts would benefit greatly from the inclusion of far more perspectives, and we hope to work to do so.

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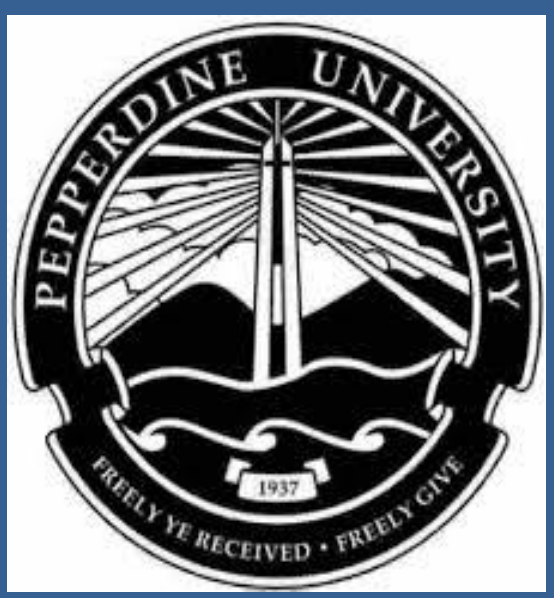
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Competencies to Combat Crises



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Abstract

The focus of this study is the ranking of the most important competencies and behaviors required of healthcare leadership amidst the coronavirus crisis. Leadership in crisis situations can have a significant impact on the performance of their staff, followers, teams and organizations (Hannah et al, 2009; Hershkovich et al., 2016; Vaughn et al, 2020). The current global pandemic has required rapid transformation, adaptability and innovation, especially within the healthcare industry prompting a call to action to re-evaluate the key competencies that are crucial for healthcare executives to overcome crises. A humanistic leadership model is presented.

Problem Statement

Health care leaders face multiple crises (i.e. mega-messes) beyond the COVID-19 pandemic (Blumenthal et al., 2020):

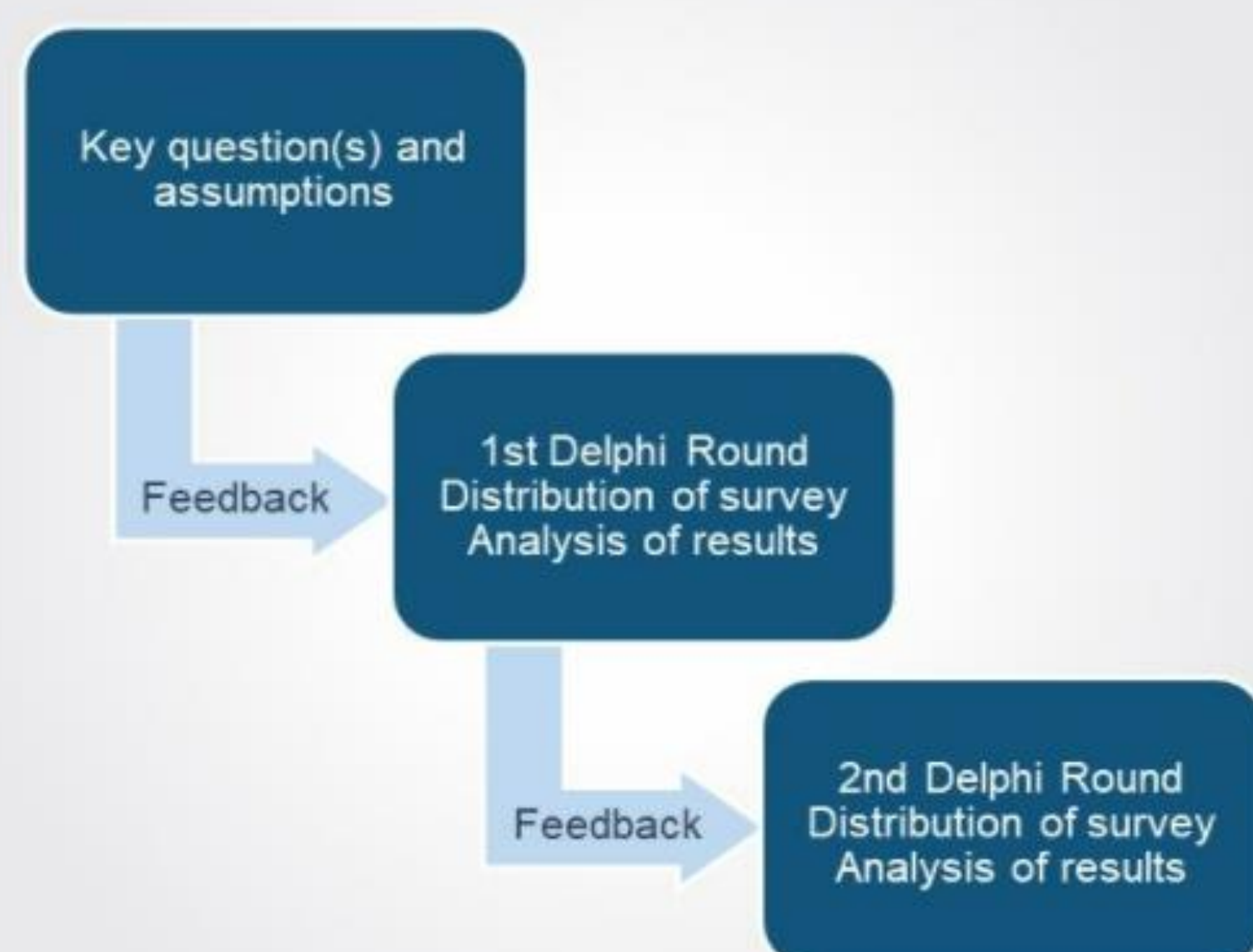
- Crisis of insurance coverage for American workers
- Financial crises for hospitals and providers
- Crisis of racial disparity in healthcare
- Crisis of available talent in healthcare with required skills
- High turnover in healthcare executives (Wheatley, 2010)

Purpose

This study aims to:

- elucidate best practice behaviors and competencies in US healthcare leadership as manifested during the coronavirus pandemic
- provide nascent research on the specific topic of key behaviors required in healthcare leadership under crisis during pandemics and concurrent crises
- benefit any organization(s) seeking to improve the performance of their leaders and their respective teams especially during times of crisis

Methodology



Source: <https://www.toolshero.com/decision-making/delphi-technique/>

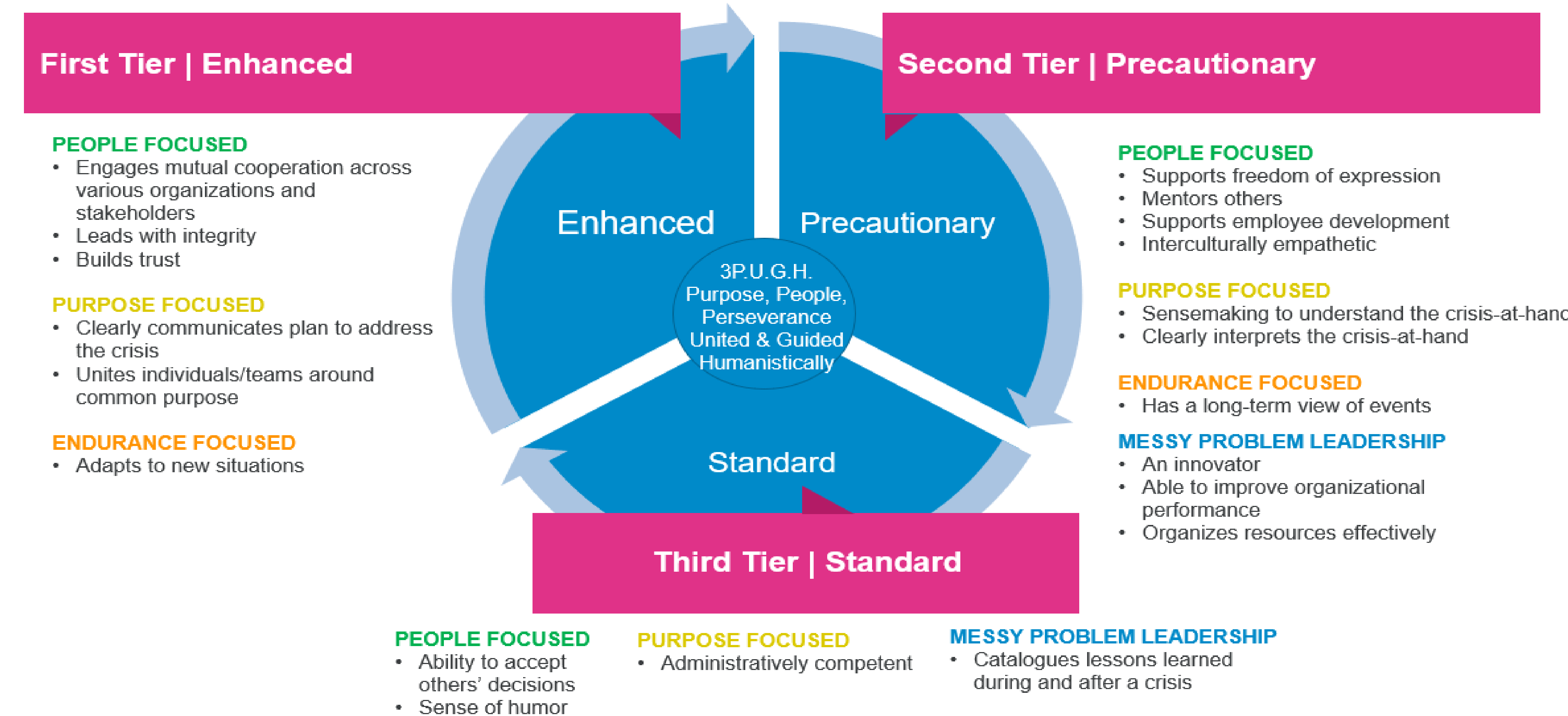
Research Questions and Crisis Leadership Competency Model

Research Questions:

- (1) What are the most important leadership competencies and behaviors of healthcare executives to manage ongoing concurrent crises?
- (2) Are there broader narratives about leadership competencies of executives in crisis that can be arrived at by further reduction of the data?

3P.U.G.H. THREE TIER MODEL of CRISIS LEADERSHIP COMPETENCIES

Groupings of the most highly ranked crisis leadership competencies by tiers of importance



Findings

Humanistic PPE Model – Jeannette Hutton Pugh © 2021



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Conceptual Framework



Synopsis of Prevailing Perspectives

- Desired leadership competencies are differentiated by situation and circumstance such as crises (Marcus et al., 2019)
- Authoritative leadership approaches may back-fire during crises (Boin & 't Hart, 2003; Ryan & Deci, 2000) or undermine long-term performance (Gagne & Panaccio, 2014)
- Crisis leadership requires competent leaders with the capability to support psychological well-being of their teams (Ryan & Deci, 2017) and create climates of psychological safety (Edmondson, 1999; Edmondson et al., 2001)
- Adaptive leadership is characterized by leaders who can appropriately adapt their behaviors to changes in situations (Kaiser et al., 2007; Pulakos et al., 2000) often by shifting from one task to another (Mintzberg, 1973)
- The Delphi method has been used to identify knowledge and competencies (Kuehn, 1991; McGee et al., 2005) and to rank defining characteristics, behaviors and tasks of leaders (Janke et al., 2016; Raghav et al., 2016)

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**COMPETITION IN AMERICAN SOCIAL WORK EDUCATION DURING TIMES OF
COVID-19: A MIDWESTERN CASE STUDY**

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Abstract

Competition to attract students for enrollment in American social work degree programs is intense. Program attributes (e.g., minimum grade point average, maximum transfer credits permitted, institutional tuition rate, and rankings) distinguish social work education programs in the United States. Determining which program attributes appeal to potential students could help increase a program's competitiveness in a crowded education marketplace. The COVID-19 pandemic is further intensifying recruitment of students to BSW programs. This research used a case study approach to compare admission attributes of 21 bachelor of social work programs (BSW) offered at 11 public and 10 private institutions located in one state that could be viewed as representative of American BSW programs. This paper compared attributes that differentiated these undergraduate social work programs, while exploring the potential impact of the pandemic on BSW student recruitment. Implications for social work education are discussed, including lessons learned that may be helpful to BSW faculty and staff responsible for student recruitment activities and related operations. Social work education program administrators and faculty could use this information to review recruitment and application processes and raise awareness of the burgeoning influence of reputational ranking services.

Key Words: BSW admissions, competition, rankings, program attributes, enrollment, Midwest

COMPETITION IN AMERICAN SOCIAL WORK EDUCATION DURING TIMES OF COVID-19: A MIDWESTERN CASE STUDY

The world was introduced to COVID-19 in late 2019 and on March 11, 2020 was declared a pandemic by the World Health Organization (2020). COVID-19 spread rapidly and uncontrollably across the globe and by mid-March 2020 nearly every facet of society, including higher education, had been impacted. Walter-McCabe (2020) indicated that “we are in strange and anxiety producing times” (p. 69). This statement is especially bothersome given that the competition to attract students for enrollment in Bachelor and Master of Social Work degree programs is fierce (Stango & Carter, 2017). Program attributes are one factor that distinguishes different social work education programs in the United States. Determining which program attributes (e.g., minimum grade point average, maximum transfer credits permitted, institutional tuition rate, and reputational rankings) are most appealing to students could help increase competitiveness in a crowded educational market (Gnolek et al., 2014; Hazelkorn, 2007; Meredith, 2004).

The COVID-19 pandemic is an evolving attribute that could influence student enrollment decisions (Iupui et al., 2020). The pandemic is having a global impact on colleges and universities due to shifting health conditions, unanticipated stress on institutional budgets, ambiguity related to developing safety protocols, and institutional hesitancy regarding how and when to safely resume traditional on-campus operations. COVID-19 also has revealed resource limitations and service gaps in many academic disciplines in colleges and universities (Benjet, 2020), including accredited social work programs.

American public and private colleges and universities offer accredited social work programs, with the Council on Social Work Education (CSWE, 2018), the accrediting body, listing 773 social work programs. In 2017, these programs included 518 Bachelor of Social Work

(BSW) and 255 Master of Social Work (MSW) programs serving approximately 124,000 students across the United States and its territories. Information on the CSWE website indicated that approximately 47,000 social work students, including 20,000 BSW and 27,000 MSW students graduated during this same time period.

Winter and early spring are critical seasons in the United States for recruiting new students for admission to social work degree programs. The recruitment season is marked by classroom visits to community colleges and high schools, open house activities on campus, and a host of other events to attract and engage potential students. The peak of the social work recruitment cycle was underway when the COVID-19 pandemic halted all activity, with many states across America issuing executive orders to stay at home (Walter-McCabe, 2020). These strict orders caused educational institutions to suspend traditional on-ground classes and other nonessential functions (e.g., admissions, financial aid, library services, etc.) while transitioning to online instructional delivery. With the movement online, many college and university instructional technology staff quickly adapted and developed remote training modules to prepare faculty for virtual instruction. Conversely, nonessential activities, such as efforts to attract new students through campus recruitment visits were canceled, or where possible, offered remotely.

Many social work programs successfully transitioned to online course delivery and offered limited student support services, such as academic advising and tutoring virtually. In contrast, some social work programs struggled to adjust to COVID-19 mandates due to limited economic and staffing resources. Because of COVID-19 restrictions, social work program faculty and administrators had to adapt by exploring unconventional or non-traditional methods for recruitment of new students. The changes due to the pandemic required adjustments in thinking and reimagining practices and communication processes (Näre et al., 2020). Changing

communication processes required use of technology, such as Zoom and/or other interactive virtual platforms (Abbasi et al., 2020; Benjet, 2020).

These platforms allow program faculty and administrators to host virtual activities designed to bridge communication gaps with current and potential students during the public health crisis. Similar to classroom instruction during the pandemic, recruitment of potential students for enrollment relied heavily on virtual tools and online engagement. The ability to successfully transition social work admission functions and related services to online platforms, while addressing COVID-19 limitations further differentiates programs.

Competition among BSW Programs

The competition to enroll students in undergraduate social work programs is expanding as interest in social work education grows internationally. Social work education has similarities worldwide, with contextual differences, including cultural, economic, political, and social events influencing competition to recruit and enroll students. Manthorpe et al. (2010) focused on competition to recruit students to social work programs in the United Kingdom (UK).

Undergraduate social work education in England is progressing, with the degree introduced in 2003 (Orme et al., 2009). Researchers argue that very little is known about how students make decisions regarding where to study social work or factors that influence their decisions to select a particular program in the UK (Manthorpe et al., 2010).

Social work education in China has a rich and complicated history, with undergraduate programs beginning in the 1920s. The Chinese government suspended social work education during the 1940s, reintroducing it nearly 36 years later to address major social issues. Competition to recruit students to Chinese social work programs is thriving despite persistent challenges, including “the lack of qualified social work teachers and professionals, the disparity

in education programs across the nation, and curricula inadequate to train future social work professionals” (Li et al., 2012, p 647).

Social work education in Africa began in the 1930s and was based on European and American models of education and training (Anucha, 2008). Social work education on the continent of Africa grew quickly, with some universities in African countries offering social work programs. Researchers (Anucha, 2008; Gray et al., 2017; Mwansa, 2010) argued that while social work education is expanding, program curricula typically do not include instruction based on contextual techniques unique to cultural and social challenges faced by those living in Africa. Competition to recruit students to “schools of social work in Africa, totally dependent on meagre resources, are in difficult circumstances and cannot afford to manage the promotion [recruitment] of social work education activities” (Mwansa, 2010, p 134).

Competition to recruit students to undergraduate social work programs in the United States is influenced by myriad factors, including shifting demographics (Robbins et al., 2016). To enhance program competitiveness and attract new students, American social work program leaders make regular updates to program websites and print material. Some social work program leaders make concerted efforts to understand student needs during the application process and attain university resources to support external recruitment activities, including social work informational sessions for prospective students (Bowie et al., 2018).

Social work programs across the United States have varying levels of institutional support and financial resources, with some programs facing potential elimination prior to the COVID-19 pandemic due to declining enrollment. The COVID-19 pandemic is exacerbating conditions at some financially strained programs, which may not continue once the pandemic has dissipated (Iupui et al., 2020). Many BSW programs with stronger institutional and

programmatic resources have online recruitment and outreach services to attract potential students. These programs provide interested students with remote access to program admission advisors and institutional financial aid counselors. Attractive interactive videos and online programs are designed to engage with the potential applicant actively. Through effective virtual programming and regular communication, potential students feel engaged and valued, making some programs more competitive than others (Curtis et al., 2019). Prior to the COVID-19 pandemic, social work admissions officers and/or faculty used a variety of recruitment strategies to attract strong applicants (Bowie et al., 2018). These strategies included offering in person and/or online informational meetings, visiting campuses of targeted community colleges with pre-social work and other related programs, developing print and/or electronic marketing materials, creating a presence on social media, and distributing branded keepsake items to stimulate further interest and remind students of their recruitment experience.

Some BSW programs have licensed full and/or part-time MSW-degreed academic staff who are responsible for recruitment, admission, and retention of BSW students. These social workers often carry institutional titles, such as academic advisor or admissions director. Social work programs with specialized academic advising staff may not share their duties with faculty.

In an increasingly competitive social work education market, smaller social work programs with limited financial resources could be adversely affected by COVID-19. Some of these programs lack designated academic staff to provide advising and must rely on program faculty to deliver these services. Along with full-time teaching, service, and research responsibilities, these faculty often assume recruitment, admission, and retention duties.

The majority of BSW programs require potential students to submit a formal social work program application, letters of reference, and a typed personal statement that details student

background, career interests, potential barriers to program completion, felony and/or misdemeanor history, and other relevant information (Pelech et al., 1999; Sowbel, 2012). These standard application materials are used to assess qualifications for admission, with some programs requiring supplemental interviews with applicants to determine suitability (Gibbs, 1994).

To maintain safety during the COVID-19 pandemic, colleges and universities implemented strict personal protection protocols that resulted in changes to the admission process. Some of these changes prohibited individuals from visiting campus in person to conduct business, such as engaging in mandatory admission interviews. Consequently, these interviews were arranged using video conferencing tools that allow remote engagement. Students without access to video conferencing tools were engaged using other communication devices.

According to some BSW program admission criteria, potential students are required to complete a specific number of clock hours of volunteer service experiences (Curl & Benner, 2017). These volunteer service experiences are designed to strengthen student awareness of social problems, as well as disadvantaged and vulnerable populations. For BSW programs that require completion of volunteer service experiences prior to admission, it is unclear what options are available given COVID-19 limitations. Selected BSW programs include a requirement for newly admitted students to declare an academic minor to complement their BSW education, while most programs require students to complete certain prerequisite courses prior to applying.

BSW programs in the United States can be distinguished from similar programs by offering generous articulation agreements and ensuring potential students are made aware these agreements exist. These programs vary regarding the number of credits hours (120 to 128) needed to complete the bachelor degree. The most attractive articulation agreements permit

students to apply large numbers of community college credits toward the bachelor degree. Some senior institutions allow students to apply more than 90 community college credits toward 4-year degrees, leaving students to complete only their major course requirements at the senior college or university.

Program Rankings

Global research by Hazelkorn (2007, 2009) explored how academic leaders worldwide used rankings to enhance their competitive edge, while guiding the development of their institutional policies and student recruitment practices. Hazelkorn (2007) explored the international impact that ranking systems could have on colleges and university competitiveness and student decisions on an institution in which to enroll. She found that some rankings influenced institutional leaders' development of academic policies and financial decision making practices. Hazelkorn (2007) argued that students, conversely, used "rankings to select or verify their choice rather than determine their choice" (p. 6).

Singer (2007) reported that American academic leaders routinely compared their programs to others, while competing for attention from potential students. Faculty and staff with student recruitment responsibilities are aware of the trend toward using national ranking sites to increase their competitive edge with potential students (Meredith, 2004). Kirk et al. (2009) maintained that American society is obsessed with competition and ranks anything ranging from restaurants to institutions of higher education. Colleges and universities must compete to remain viable in an increasingly competitive and saturated educational market. Given the potential impact of COVID-19 on program admissions and enrollment, the use of specialty or reputational ranking systems could help increase the competitive profile of some institutions. Rankings now include comparisons of college and university programs, such as MSW and BSW programs.

Researchers maintained that ranking systems help communicate the level of quality an institution might possess based on key indicators, including faculty research productivity, teaching excellence, employment patterns of its graduates, and perceived institutional reputation (Gnolek et al., 2014; Hazelkorn, 2007, 2009). A rich body of research explored how colleges and universities used commercial ranking systems to distinguish themselves from their competitors (McLeod, 2014; Meredith, 2004; Meyer et al., 2017). Millot (2015) added that ranking systems have become a central element in higher education. Sharing reputational rankings on university websites is becoming compulsory in competing for students.

Rankings provided by these rating entities often result in badges that can be displayed on program websites. The ranking and subsequent badges provided by these services are often described as reputational rankings (Dill, 2009). Reputational rankings of BSW programs is a new phenomenon, with no research identified that explored these evolving rating entities. BSW programs can receive reputational rankings based on a variety of unique characteristics.

While controversial, a growing body of research has explored rankings related to MSW degree programs. No research was identified that examined BSW program rankings, although the number of websites offering such rankings has increased. Dill (2009) argued, “prestige based upon scholarly reputation has long been recognized as a primary goal of universities” (p. 5).

Attributes that could help distinguish undergraduate social work programs from competitors include institutional responses to the COVID-19 pandemic, tuition rates, BSW admission requirements, number of credit hours transferable from community colleges, availability of online, hybrid and/or flexible course delivery options (day/evening/weekend courses), college and university affiliation, such as public or private and program and/or institutional specialty or reputational rankings. An increase has been noted in entities (e.g., The

Gourman Report, Socialworkdegree.org, Thebestschools.org, and Zippia, Inc.) publicizing their rankings of BSW degree programs using proprietary selection methods. Differences in BSW program admission criteria could result in a reputational ranking indicating one BSW program is more rigorous and discerning than other programs.

Zippia, Inc. (2020), a career-based organization, ranks professional schools using National Center for Education Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS) information on employment of alumni 10 years after graduating. Zippia, Inc. (2020) determines rankings using data from NCES and College Scoreboard, along with assessment of BSW graduate career outcomes. The career outcomes include a ratio of graduates working to not working after 10 years, mean income at 6 and 10 years post-graduation, institution emphasis on social work; and school performance (e.g., more admission selectivity; program graduation rates, institutional average cost of attendance, and student median debt). Colleges and universities ranked by Zippia, Inc. include information on their websites to indicate the reputation and prestige of social work programs. For example, Zippia, Inc. (2020) provided 2018 rankings for its top 10 BSW programs in the state of Michigan:

1. Michigan State University
2. Hope College
3. Ferris State University
4. Grand Valley State University
5. Madonna University
6. Oakland University
7. Central Michigan University
8. Spring Arbor University
9. Saginaw Valley State University
10. Kuyper College

A growing list of websites (e.g., The Gourman Report, Socialworkdegree.org, Thebestschools.org, and Zippia, Inc.) rank undergraduate social work programs. Each of these sites constructed program rankings and critiques based on different criteria. For example, criteria

listed on the Zippia, Inc. (2020) website does not provide information on the source of some of the data, making it difficult to verify. In contrast, NCES and College Scorecard data from ED.gov provided some program data, information on income, working 10 years after graduation, student median debt, and admission selectivity that may have been collected from the colleges or programs. However, if students changed professions, did not report their income or student debt information to the university, data would not be available. Although the popularity of ranking sites is increasing, these sites remain controversial with regard to their validity (Davis, 2016; McLeod, 2014; Pelech et al., 1999; Singer, 2007).

Purpose of the Study

American students have many choices when considering a BSW program in which to enroll. The purpose of this study is to explore attributes that differentiate BSW degree programs in an increasingly competitive social work education market. Social work program directors can use information obtained from this study to develop marketing strategies and recruitment practices to showcase how their programs provide unique educational experiences for interested students. Showcasing program attributes and other resources could be important in attracting students during times of crisis, such as during the COVID-19 pandemic.

Michigan is home to 21 CSWE accredited BSW programs offered in 11 public and 10 private colleges and universities. The state of Michigan could be viewed as a microcosm of the United States in regard to CSWE accredited BSW programs. The 21 BSW programs in Michigan have varied admission requirements and offer different program attributes that can increase competition to attract students.

Methods

A case study research design was used for this research. According to Yin (2017), case studies are in depth examinations of a phenomenon of interest. The phenomenon being examined are attributes of BSW programs in the United States that are used to attract potential students. To assure that the study is focused, the researcher made the decision to limit the data to one state. The primary criterion for inclusion in the study was the program had to be accredited by the CSWE. All social work programs in the State of Michigan that were accredited were included regardless of governance (public or private). The variables that directly affect recruitment of potential students include: included program attributes, such as BSW application requirements, instructional course delivery format, maximum credit hours required for the major, maximum transferable community college credit hours, MSW degree program offered on campus, total BSW students enrollment, and total number of students enrolled at the institution. A comprehensive review of recruitment literature indicated which variables are used by students when considering different university/college programs that meet their needs for a quality education.

The principal investigator (PI) compared admission requirements and other attributes that differentiated the state's 21 BSW degree programs. Data were collected from BSW program websites and National Center for Education Statistics Integrated Postsecondary Education Data Systems (NCES, n.d.). She searched institutional and program websites, inspected BSW electronic handbooks, and viewed university catalogs.

Case study researchers generally seek data from multiple sources to assure validity of the study (Fusch et al., 2018). The rationale for selection of these sources of data were because these data provided triangulation of admission criteria for the 21 programs in Michigan. Data presented in the analysis were based on 2018 information from the various sources. In cases

where conflicting information on some variables was found, another source was found to verify the data.

The data were analyzed using content analysis (Merriam & Tisdell, 2016). This analytic method is a preferred research method for case studies (Wagner, 2017) and was used to compare attributes of the included programs. Themes were developed to group the similar variables and their use in recruitment efforts.

Comparison of BSW Programs

The 21 BSW programs accredited by CSWE were similar in course content and closely followed the generalist practice model, making it difficult for potential students to distinguish one program from another. Some universities and colleges advertise their social work programs on the basis of unique attributes, such as location, nearby amenities, and national rankings. Drawing comparisons among the programs can require potential students to expend considerable time examining differences that may influence their decisions.

Potential students have myriad options for pursuing a BSW education. These students can consider 10 BSW programs that are located within 90 miles of Detroit with the remaining 11 programs located across the state. This section provides comparisons based on 2018 data, including the number of students at the university/college; number of students enrolled in the BSW program; application requirements; total credit hours needed (e.g., university/college degree, BSW major, and transfers from community colleges); instructional delivery formats (i.e., timing of course delivery); tuition at each of the colleges/universities; and MSW program offered (See Table 1). While this study compares programs, no attempt is made to rate the programs in any type of hierarchy.

Table 1

Comparison of Social Work Programs (Fall 2018)

Institution and type, Public = 1 Private = 2	BSW Program Student Enrollment/ Total Institutional Undergraduate Enrollment	Application Requirements*	Total Credits			BSW Instructional Delivery Format**					Per Credit Hour Tuition Rate Upper Division In-state/Flat rate if available	MSW Program Offered
			University Degree	BSW Major	Maximum transferable from a community college	O	H	T	D/E	W		
Adrian College (2)	20/1,817 = 1.1%	1. 2.50 GPA 2. 17 CH 3. 3-4 pages 4. 2 references 5. Electronic and paper	124	40	60			X	X		\$975 per credit for 1-11 credits, flat rate for 12-18 credits = \$36,112	
Andrews University (2)	35/1,704 = 2.1%	1. 2.50 GPA 2. 15 CH 3. No maximum length 4. None (must complete background check) 5. Electronic - submit via email	124	44	70			X	X		\$1,178 per credit for 1-11 credits, flat rate for 12-16 credits = \$14,136.00	X
Calvin College (2)	86/3,465 = 2.5%	1. 2.50 GPA 2. 35 CH + 50 hours volunteer service 3. 720-1250 words 4. 1 reference 5. Electronic	124	47	70			X	X		\$867 per credit for 1-5 credits; \$1,350 per credit for 6-11 credits; flat rate for 12-17 credits = \$18,050	
Central Michigan University (1)	219/14,795 = 1.5%	1. 2.50 GPA 2. 50 CH/ 50 hours of volunteer service, 3. 1-page	124	42	64	X		X	X		\$417 per credit, no rate variations	

Institution and type, Public = 1 Private = 2	BSW Program Student Enrollment/ Total Institutional Undergraduate Enrollment	Application Requirements*	Total Credits			BSW Instructional Delivery Format**					Per Credit Hour Tuition Rate Upper Division In-state/Flat rate if available	MSW Program Offered
			University Degree	BSW Major	Maximum transferable from a community college	O	H	T	D/E	W		
		4. 3 references 5. Paper/Electronic										
Cornerstone University (2)	45/1,250 = 3.6%	1. 2.50 GPA 2. None 3. 300 word essay 4. None 5. Electronic	120	45	No maximum number per registrar's office			X	X		Flat rate tuition for 12-18 credits = \$24,500; 19+ credits = \$700 per credit	
Eastern Michigan University (1)	410/16,023 = 2.6%	1. 2.30 GPA 2. 10 CH and 40 hours of volunteer service 3. 3-5 pages 4. 1 reference 5. Electronic	124	57	73	X	X	X	X	X	\$437.50 per credit	X
Ferris State University (1)	280/11,896 = 2.3%	1. 2.30 GPA 2. 56 CH 3. 3-5 pages 4. None 5. Electronic	120	44	90	X	X	X	X		\$431 per credit	X
Grand Valley State University (1)	400/21,680 = 1.8%	1. 2.50 GPA 2. 56 CH 3. 5-7 pages 4. None 5. Electronic	120	44	62			X	X		\$651 per credit for 1-11 credits, flat rate for 12-15 credits = \$13,108	X
Hope College (2)	30/3,149 = 1.0%	1. 2.50 GPA 2. 18 CH 3. 1 page 4. 2 references 5. Electronic	126	64	65			X	X		\$550 per credit	
Kuyper College (2)	30/161 = 18.6%	1. 2.00 GPA 2. 12 CH	120	42	62			X	X		\$987 per credit for 1-11 credits, flat rate for 12-	

Institution and type, Public = 1 Private = 2	BSW Program Student Enrollment/ Total Institutional Undergraduate Enrollment	Application Requirements*	Total Credits			BSW Instructional Delivery Format**					Per Credit Hour Tuition Rate Upper Division In-state/Flat rate if available	MSW Program Offered
			University Degree	BSW Major	Maximum transferable from a community college	O	H	T	D/E	W		
		3. No page limit, submitted online 4. 2 references 5. Electronic									17 credit s= \$22,886	
Madonna University (2)	26/2,440 = 1.1%	1. 2.50 GPA 2. 45 CH, complete service learning course 3. 3-4 pages 4. 2 references 5. Paper	120	47	74	X	X	X	X		\$730 per credit for 1-11 credits, flat rate for 12-18 credits = \$10,950	X
Michigan State University (1)	196/39,423 = 0.5%	1. 2.00 GPA 2. 56 CH 3. 5-7 pages 4. None 5. Electronic	120	38	60	X	X	X	X		\$555 per credit rate	X
Northern Michigan University (1)	96/7,089 = 1.4%	1. 2.50 GPA 2. 60 CH 3. 3-5 pages 4 None 5. Paper	120	48	90	X		X	X	X	\$645 per credit, 1-11 hours, 16 or more credits is \$645 per hour, \$8.077 per semester	X
Oakland University (1)	205/15,799 = 1.3%	1. 2.80 GPA 2. 56 CH 3. 2 3-4 pages 4. 2 references 5. Electronic	124	48	64			X	X		\$498 per credit	
Saginaw Valley State University (1)	100/7,431 = 1.3%	1. 2.50 GPA 2. 24 40 CH/ 40 hours of volunteer work in human service organization	124	42	62		X	X	X		\$451.65 per credit	X

Institution and type, Public = 1 Private = 2	BSW Program Student Enrollment/ Total Institutional Undergraduate Enrollment	Application Requirements*	Total Credits			BSW Instructional Delivery Format**					Per Credit Hour Tuition Rate Upper Division In-state/Flat rate if available	MSW Program Offered
			University Degree	BSW Major	Maximum transferable from a community college	O	H	T	D/E	W		
		3. None 4. 3 references 5. Electronically										
Siena Heights University (2)	32/2,216 = 1.4%	1. 2.50 GPA 2. 12 CH 3. 3-5 pages 4. 2 reference 5. Electronically	123	61	90			X	X		\$530 per credit	
Spring Arbor University (2)	309/1,281 = 24.1%	1. 2.50 GPA 2. 58 CH 3. 1 page 4. 3 references 5. Electronically	124	51	90	X	X	X	X		\$587 per credit	X
University of Detroit Mercy (2)	49/2,880 = 1.7%	1. 2.00 GPA 2. 24 CH 3. 1-2 pages 4. 1 reference 5. Electronic and paper	126	47	63	X	X	X	X		\$1049 for full-time students; \$567 per credit for part-time cohort	
University of Michigan-Flint (1)	164/6,097 = 2.7%	1. 2.40 GPA 2. 22 CH 3. None 4. None 5. Electronic/Paper	124	33	77			X	X		\$456 per credit	
Wayne State University (1)	327/17,602 = 1.9%	1. 2.50 GPA 2. 24 CH 3. 2-3 pages 4. 2 references 5. Electronic	120	60	71 from Schoolcraft College and Macomb Community College; 64 credits allowed from all	X	X	X	X		\$456.58 per credit	X

Institution and type, Public = 1 Private = 2	BSW Program Student Enrollment/ Total Institutional Undergraduate Enrollment	Application Requirements*	Total Credits			BSW Instructional Delivery Format**					Per Credit Hour Tuition Rate Upper Division In-state/Flat rate if available	MSW Program Offered
			University Degree	BSW Major	Maximum transferable from a community college	O	H	T	D/E	W		
					other community colleges							
Western Michigan University (1)	108/17,760 = 0.6%	1. 2.50 GPA 2. 30 CH 3. 4-6 pages 4. None 5. Electronic/Pape	122	35	62	X	X	X	X	X	\$556 per credit hour; 12-15 credit hours is \$6,660 per semester	X
Note: Application Requirements: 1. Required GPA for admission into BSW program; 2. Minimum credit hours (CH) required for admission into BSW program; 3. Written application statement and length; 4. Reference letters; 5.BSW program application, paper and/or electronic ** BSW Instructional Delivery Format: Online, Hybrid, Traditional Day/Evening Weekend												

Findings

Understanding the influence certain BSW program attributes have on student enrollment decisions could help social work educators to strengthen the competitiveness of their programs. Among the 21 colleges and universities included in this study, 11 were state supported public universities and 10 were private, religious affiliated institutions. During fall 2018, the student populations of the universities ranged from 184 students at Kuyper College to 39,423 at Michigan State University and BSW program enrollment ranged from 20 at Adrian College to 410 at Eastern Michigan University. Public universities tend to be larger, with most having total enrollments greater than 7,000 students. In contrast, most private colleges/universities tend to have enrollments less than 5,000 students. An examination of enrollment data revealed that while some colleges and universities had larger student populations overall, several smaller institutions had greater percentages of students enrolled in their BSW programs relative to the total number of undergraduate students enrolled at the university. For example, in 2018, University of Detroit Mercy (UDM), a small private, faith-based institution had an undergraduate student population of 2,880, with 49 (1.7%) enrolled in the BSW program. In contrast, Michigan State University with an undergraduate enrollment of 39,423 students, with 196 (0.5%) enrolled in social work programs. In comparison, during Fall 2018, Eastern Michigan University had 16,022 students enrolled, with 410 BSW students, accounting for 2.6% of the total undergraduate population.

Attributes of Social Work Program

Instruction

Approximately 52% ($n = 11$) of BSW programs, including 9 private and 2 public, in the current study had 100 or fewer students enrolled. MSW degree options are available in 11 BSW programs, including 3 that are offered in private institutions. Potential BSW students might find

these programs attractive as they offered a seamless transition to a master's program without having to change schools. The attribute, BSW instructional delivery format revealed that smaller, private BSW programs tended to offer fewer course scheduling options, limiting students primarily to traditional courses during the day and evening. In contrast, larger BSW programs frequently presented students with a variety of flexible course scheduling patterns, including weekend, traditional on campus, online, and hybrid.

Amenities

Despite offering numerous amenities, larger public institutions were proportionately no more effective in attracting and enrolling BSW students than smaller private institutions. Research by Beadlescomb (2019) indicated that smaller academic programs often are associated with empowering their students, providing students with a sense of inclusion in the classroom, and the ability to get to know their faculty. Findings in the current study could convey to administrators of smaller BSW programs that students are willing to accept fewer program conveniences and institutional benefits if during the recruitment process they perceive their program of choice best meets their personal needs.

Application Requirements

Application requirements to social work programs generally include five elements, including minimum college grade point average, number of credit hours completed, a written application statement, reference letters, and the program application (paper and/or electronic). Each university requires different configurations of these elements. For example, an institution with a large BSW program may be more selective and make the application process more rigorous, while smaller programs may require less information.

The majority of BSW programs required applicants to submit at least one letter of reference, along with a typed personal statement detailing the applicant's interest in the field of social work. Conversely, all programs required applicants to present a minimum grade point average (GPA), ranging between 2.00 to 2.80, with the majority requiring a 2.50 GPA. One BSW program that did not require references from applicants, mandated applicant background checks. Only one BSW program did not require that applicants present a minimum number of credit hours, letters of reference, or personal statement for admission consideration. This institution was among those allowing the highest number of community college transfer credits toward the degree. While CSWE does not require BSW programs to include a minimum number of credit hours for the major, it requires all programs include specific content areas, such as Human Behavior, Policy, Practice Methods, and Field Education. BSW educators can further differentiate their academic programs by including unique courses within the major that are not required by CSWE but are integrated based on perceived gaps in the curriculum. These unique courses could include human trafficking, trauma informed practice, and digital advocacy. Offering BSW students courses in the major with contemporary content could be attractive and increase a program's competitiveness.

Credit Hours

The minimum number of credit hours required to gain admission to the BSW degree programs ranged from none to 60 and is another point of differentiation. By allowing admission into the BSW programs prior to meeting university general education requirements, students may need to remain enrolled at the university to complete freshman and sophomore classes after satisfying their SW program requirements. In addition to credit hours needed for admission to

the BSW program, some schools require potential students to have 40 to 50 volunteer hours in the community. One university requires students to complete a service learning course.

Credit hours, including hours required for graduation, hours in the social work major, and hours transferable from a community college, are factors in choosing a BSW program. All colleges and universities require 120 to 126 credit hours to graduate with a baccalaureate degree. The hours that must be completed for a social work major range from 33 to 87, with an average of 48 credit hours. Transferring credit hours from a community college can reduce costs associated with completing BSW programs. The number of hours that can be transferred range from 60 to 90, with one university having no limit. However, when a school agrees to accept 90 credit hours, the student must complete the credit hours needed for the major. As a result, students may exceed the total number of credit hours completed for graduation to fulfill the number of courses required for the BSW degree.

COVID-19 Pandemic Challenges

Recruitment during COVID-19.

Many BSW programs were impacted by COVID-19 restrictions, including reaching and sustaining engagement with potential BSW students. Challenges related to COVID-19, such as cancelation of off-campus recruitment visits, traditional face-to-face advising appointments, and on-campus group informational meetings with potential students, limited efforts by faculty and admission staff to reach many individuals interested in pursuing social work as a career. Many faculty were faced with transitioning traditional face-to-face courses to online, while learning to use new technologies, further reducing their time to speak with potential students. The impact of these restrictions are unfolding as program administrators review availability of resources, reevaluate offerings, and develop innovative recruitment efforts.

Instruction During COVID-19

Another point that must be considered when recruiting students for admission into a BSW program is the instructional delivery format. Given COVID-19 safety mandates during spring 2020, social work programs transitioned their courses from traditional to fully online. Prior to spring 2020, program courses were offered using different delivery formats, including online, traditional, and hybrid. The online delivery method has all classes taught virtually and works best for students who are at a distance from the school or cannot take classes at a particular time and place due to personal and/or work commitments. Traditional courses meet face-to-face on campus or at a satellite campus. Hybrid uses both online and traditional delivery methods for some classes. Depending on learning styles, some students may perform better in traditional programs while others function well in distance learning programs, depending on their personal preferences. During the pandemic, students needed to adjust quickly as all courses were moved online for safety (Abbasi et al., 2020; Smoyer et al., 2020).

Tuition Costs

The per credit hour tuition rate is often viewed as an important characteristic when deciding which institution to attend. Based on a review of institutional data (See Table), public institutions typically had lower per credit hour rates for tuition than did private institutions. The range of tuition for the state supported institutions is from \$417 to \$651, while private institutions range from \$530 to \$1,178. One private university offers a discount to students enrolled in its part-time cohort programs, while others offer flat tuition rates for students enrolling in 12 or more credit hours. Offering students a flat fee tuition rate can appear attractive upon first glance. However, students should be encouraged to engage in additional review and calculate tuition costs to determine the value of flat fee tuition rates. For example, some private

colleges offer a per credit tuition rate for students enrolling in 1 to 11 credit hours and a flat rate for 12 or more credit hours. When performing a calculation of the flat fee per credit hour rate in comparison to the per credit tuition rate, the amount students paid for tuition was substantially higher. Students should carefully review tuition options to determine which type of tuition rate yields financial benefits. In addition, potential students in larger schools may have more opportunities for scholarships, grants, and other funding options to decrease costs associated with attending their social work programs.

Discussion

This case study compared admission requirements and other attributes that differentiated 21 BSW degree programs. Admission requirements and program attributes could make some programs more competitive given COVID-19 challenges. The investigator collected information on each BSW program by searching institutional and program websites, inspecting BSW electronic handbooks, and viewing university catalogs. A description of the unique qualities of each program indicated that while similar, the programs offered special amenities to attract students.

While the majority of the BSW programs in the state have similar admission requirements; including a formal BSW application, written personal statement, and letters of reference; the advent of COVID-19 has resulted in changes in some processes. Prior to the COVID-19 pandemic, BSW administrators differentiated their programs from competitors by offering options, such as full or part-time enrollment; instruction offered in traditional, online, and/or hybrid; or an assortment of day/evening/weekend courses.

Other BSW program administrators marketed their programs based on campus and extended community amenities, special reduced tuition rates offered to certain student

populations, availability of program specific scholarships, extracurricular activities, study abroad travel opportunities, accessibility to faculty and staff, and class size. Amenities that require interpersonal interactions have been suspended until the pandemic has been resolved.

Another factor that could increase program competitiveness are specialty or reputational rankings awarded to academic programs that meet certain standards. BSW programs, identified by ranking organizations, typically post badges or emblems to reflect their esteemed status on program websites for potential students to view. Applicants might perceive badges as a valid method for determining program value and quality, unaware of criteria used for rankings.

BSW administrators could collaborate with both community colleges and universities with MSW programs to distinguish their programs. For example, universities and colleges developed articulation agreements to allow students to transfer from community colleges to the BSW program with little loss of credit. Offering potential BSW students with access to MSW programs on campus after graduating is another distinguishing factor. The current study identified 11 BSW programs that shared space and resources with MSW degree programs on their campus. Some BSW students might find entry to these MSW programs attractive as they may already be familiar with faculty, program and campus-wide resources, and the surrounding community. Social work program administrators with free-standing BSW programs often establish unique collaboration agreements with other colleges and universities that offer MSW programs. In some instances, institutions with stand-alone BSW programs could serve as extension campuses to universities with MSW programs. These programs are seeking to expand their reach in certain communities and/or within specific geographical locations. These unique collaborations could help strengthen BSW enrollments at partner institutions.

Instructional delivery methods used to deliver education to BSW students is an attribute that delineated programs from each other. For example, 10 BSW programs in the current study indicated that they offered courses using a variety of delivery formats including online, hybrid, and traditional. Three BSW programs scheduled courses on Saturdays to meet the scheduling demands of students, with two programs advertising that they offered all delivery formats. Two BSW programs advertised that they offered a fully online BSW option, the CSWE website did not include either of these programs on their list of accredited online BSW programs.

Lessons Learned for Recruitment of BSW Students

The COVID-19 pandemic resulted in several lessons learned that may prove helpful to BSW faculty and staff responsible for student recruitment activities and related operations. Firstly, BSW program leaders need to review admission requirements and program features to make their programs unique. While some programs, such as Northern Michigan University, were not concerned about competition for students due to their location, other programs, (i.e., those located in Metropolitan Detroit), must find innovative ways to increase admissions by offering students conveniences and services designed to meet their increasingly diverse needs, especially during times of crisis and uncertainty. Secondly, students must do their due diligence to investigate which program satisfies their needs and provides them with the type of educational experience and resources they are seeking to address their professional goals.

Thirdly, instructional delivery methods have changed since the advent of COVID-19, with all colleges and universities forced to transition to online courses. Online courses could be synchronous or asynchronous, depending on the instructor's choice or program requirements. As administrators and faculty make plans to resume BSW programs on their campuses, another instructional delivery method, Hyflex, may be adopted. Prior to the pandemic, none of the BSW

programs in Michigan were offering courses using the hyflex model. Malczyk (2019) explained that hyflex courses allow students the option of attending courses traditionally on campus, online synchronously, or asynchronously using video technology. With hyflex courses, students can choose to vary the instructional delivery method for each class session, deciding how and when they will participate in learning. Social work educators may want to incorporate hyflex availability as another factor in making their programs unique.

Lastly, during the COVID-19 pandemic, some educators responsible for BSW student recruitment and admissions struggled to find balance. Some struggled due to a lack of resources typically available to them on campus, such as institutional staffing support, ability to sign documents remotely, as well as access to private databases and other computer systems. Future efforts could be made to equip certain faculty and staff, as funding permits, with free and unlimited signatory apps to process program documents, virtual private network (VPN), access to certain campus admission systems using mobile devices, and access to software to convert PDFs and other document types. As the pandemic is still evolving, no research could be identified that explored how social work program faculty and staff responses to the COVID-19 pandemic influence how students view a program in comparison to others.

Limitations

A limitation of this study was the use of all accredited BSW programs in a single state. These programs included public and private institutions which may not be representative of all colleges and universities in the United States. However, all BSW programs were accredited by CSWE, indicating admission requirements in this state may be similar to other BSW programs across the country. A second limitation was that data were collected from a number of sources, including NCES, IPEDs, university websites, student handbooks, university catalogs, and

personal communications with social work faculty and staff. Much of this information is self-reported by university and college administrators and may not be an accurate reflection of the programs. A third limitation is that natural disasters and other unforeseen events, such as the COVID-19 pandemic can impact recruitment of new students and resource allocation for program operations. The lack of adequate resources, including staffing and technology, can impact ongoing program viability and future sustainability.

Conclusion

Meeting the growing need for social workers world-wide should be the primary focus of recruitment efforts by administrators of social work programs. To meet this need, social work education is expected to continue to expand in the United States and internationally in coming years. Social work program administrators should evaluate their admission requirements and program attributes regularly to ensure ongoing attractiveness in an increasingly competitive social work education market. BSW program leaders should help potential students to visualize value beyond tuition costs and related expenses. When marketing their programs, BSW program administrators must be mindful of intangible, unquantifiable program attributes, such as helping students feel valued during the recruitment process, demonstrating patience and inclusivity with students, while also encouraging quality student engagement with faculty and staff.

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Catching Sense, Collective Memory, and Black People: A Research Note on the Terms Geechee and Gullah

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Abstract

This paper will examine the origins and development of the terms Geechee and Gullah from an emic perspective and an Afro-centric approach as an exploration in catching sense (i.e., gaining knowledge). It will also examine definitions of the terms Afro-centric, emic, catching sense, collective memory, social group, Black people, Maroon, outlyer, partisan, and Seminole Nation. In addition, this paper will cover the implications of this research on the terms Geechee, Gullah, and related concepts.

Introduction

In the 1960s, W.E.B. Du Bois became involved with an important project known variously as Encyclopadia Africana and Encyclopedia Africana. With this project, Du Bois sought to complete one he started almost 60 years before. Whereas he was not able to garner the project resources needed in the United States of America (USA), his mentee Kwame Nkrumah jumped at the chance to provide them once he took power in 1958. Du Bois and Nkrumah first met in 1945 at the Sixth Pan-African Congress, which was held in Manchester, England (Du Bois, 1968).

At the invitation of Nkrumah, Du Bois moved to Accra, Ghana. After Nkrumah took power in Ghana, one of the first things he did was to invite Du Bois to come there and complete a project he started in 1909. Although he was then in his 90s, Du Bois jumped at the chance. Du Bois and his wife Shirley Graham Du Bois made the move to Ghana in 1961. He never returned to the USA and died in Ghana in 1963. As the leading Black scholar of the 20th century, he paved a pathway for the exploration of the Black experience in the Diaspora as well as Africa (Du Bois, 1968).

In 1962, Du Bois utilized the term “Afro-centric” in a document related to his Encyclopedia Africana project. Du Bois used the term Afro-centric to refer to an analysis wherein Black people would place Africa and people of Black African descent at the center rather than the periphery. Thus far shown, Du Bois never did use the term emic, but he certainly urged the use of that viewpoint with his Afro-centric concept. Thus, Du Bois was a pioneer who laid a path for other scholars to follow when looking at the Black experience in Africa and the Diaspora via an Afro-centric approach and an emic viewpoint. In other words, he used that perspective to look at the dynamics of Black life in the USA, Africa, and elsewhere (Du Bois, 1962).

As used in this paper, the term emic refers to an inside viewpoint or the view of an insider in contrast to the term etic which is an outside viewpoint or the view of an outsider. This distinction between the etic and emic draws on Pike (1967). He explained that the two viewpoints can be utilized to examine “cultures or languages” (p. 37). Pike related that “emic descriptions provide an internal view, with criteria chosen from within the system. They represent to use the view of one familiar with the system and who knows how to function within it himself” (p. 38). He also said that, “Descriptions or analyses from the etic standpoint are ‘alien’ in view, with criteria external to the system” (p. 38).

When it comes to looking at what is popularly called the Gullah/Geechee heritage, the present writer possesses an emic viewpoint or the view of an insider because he can trace back his Geechee and Gullah heritage for at least six generations. For example, the present writer’s mother, Julia Frazier Cromartie Boyd, was a Geechee and a descendant of a Black Seminole woman named Bess Frazier who lived on the Georgia coast in Camden County. A report from AfricanAncestry.com indicates that the present writer’s maternal DNA is Yoruba from Nigeria. The present writer’s father, Jimmie Lee Cromartie, was a Gullah born in the shadow of Negro Fort in Florida and a descendant of a Gullah man, June Wright Cromartie, who once lived in North Carolina’s Bladen County and Sampson County. A report from AfricanAncestry.com shows that the present writer’s paternal DNA is Akan from Ghana.¹

The aim of this paper is to examine the origins and development of the terms Geechee and Gullah from an emic perspective and an Afro-centric approach as an exploration in catching sense (i.e., gaining knowledge).² It will also examine definitions of the terms Afro-centric, emic, catching sense, collective memory, social group, Black people, Maroon, outlyer, partisan, and Seminole Nation. In addition, this paper will cover the implications of this research on the terms Geechee, Gullah, and related concepts. The research in this paper will utilize a mixed-methods approach involving the case study method and the participant observation method.

Review of the Literature

Over the years, many scholars have explored aspects of the Gullah language. On the one hand, some of them were Black. On the other hand, some of them were White. The Black scholars included Lorenzo Dow Turner. Among the White scholars and writers are Henry Mencken, George Krapp, Ambrose Gonzalez, and Mason Crum.

Turner was one of the first Black scholars to examine the Gullah language. He developed a distinguished career as an academic. Turner held a Ph.D. in English literature from the University of Chicago and served as chair of the English Department at Howard University. At one time, Turner also served as the editor and publisher of the Washington *Sun* newspaper. Although he referred to it as variously as a dialect and language, Turner argued that Gullah was much more than “incorrect English grammar.”

Using a systematic approach, Turner (1941a, 1949) closely examined the Gullah language in terms of sounds, vocabulary, grammar, sentence structure, and semantics. With that approach, Turner identified some 300 African words in Gullah. He also identified some 4,000 African personal names in use among the Gullah people. Turner reached his conclusions by conducting extensive fieldwork in Georgia and South Carolina.

Because of his major contributions, the study of Gullah can be divided into “before Turner” and “after Turner.” Although it does not mean his work has no errors, Turner set a standard in the study of Gullah which has not been surpassed by any others. Some of the Black

scholars who have stood on the shoulders of Turner and acknowledged him in their books are Blassingame (1972/1979); Jones-Jackson (1987); Creel (1988); Baird (Baird & Twining, 1991); Mufwene (1993); Guthrie (1996); Smitherman (1998); Holloway (1990/2005); Rickford (Rickford & Rickford, 2000), Cooper (2017). Some of the scholars from other races who have stood on the shoulders of Turner and acknowledged him in their books include Herskovits (1941b); Dillard (1972); Hancock (1980); Joyner (1984); Opala (1987); Twining (Baird & Twining, 1991); Montgomery (1994); Pollitzer (1999); Gilbert (2002); Cross (2008), and Holladay (2019).³

As he went about his research, Turner made a conscious decision to debunk the theory of some White scholars and writers that Gullah was little more than “incorrect English language” as Cross (2008) has noted. Among the White scholars and writers Turner consciously sought to debunk were J. Bennett (1908, 1909); Gonzales (1922); Krapp (1925); Mencken (1919, 1936); G.B. Johnson (1930), G.G. Johnson (1930); Stoney (Stoney & Shelby, 1930); Shelby (Stoney & Shelby, 1930), and Crum (1940).⁴ During the first decade of the 20th century, J. Bennett (1908, 1909) emerged as a major voice who argued that Gullah was a dialect of English and not a Creole language. J. Bennett began the first of two by describing Gullah as “a patois spoken in the mainland and island regions, bordering the South Atlantic Seaboard, so singular in its sound as constantly to be mistaken for a foreign language” (p. 332). He also informs us that “there remains more that is African in the Gullah than has been preserved in the other negro dialects” (p. 338). However, J. Bennett proceeds to argue at the end of his article that Gullah language is basically English in an “Elizabethan style” (p. 346).

In the following year, J. Bennett (1909) published the second of his two articles on Gullah. J. Bennett started the article by going to great lengths to show some similarities between Gullah and Cockney English. Nevertheless, J. Bennett also reveals that Buckra is an African term. In no uncertain terms, J. Bennett stated that, “The *Gullah* negro’s title for the white man is *buckra*, or *buckerra* . . .” (p. 46). Thus, despite his overall position that Gullah was a dialect of English, Bennett acknowledged that one of the words used by Gullahs that can be traced back to Africa was Buckra.⁵

Toward the end of the 19th century, Gonzales (1922) emerged as a major literary voice based on his writings about the Gullah people and the Gullah language. Gonzales had no education beyond grade school, but he managed to have a career as a telegrapher, an editor and publisher of his own newspaper, and an author. Based on his observations of Gullahs on the plantation of his family, Gonzales was able to write a collection of stories reflecting what he said they told him. By publishing his collection, Gonzales took an action similarly to Joel Chandler Harris and his Uncle Remus stories and Charles Colcock Jones, Jr. and his folk tales from the Georgia coast. Regarding the Gullah language, Gonzales said:

Slovenly and careless of speech, these Gullahs seized upon the peasant English used by some of the early settlers and by the white servants of the wealthier Colonists, wrapped their clumsy tongues about it as well as they could, and, enriched with certain expressive African words, it issued through their flat noses and thick lips as so workable a form of speech that it was gradually adopted by the other slaves and became in time the accepted Negro speech of the lower districts of South Carolina and Georgia. With characteristic laziness, these Gullah Negroes took short cuts to the ears of their auditors, using as few words as possible, sometimes making one gender serve for three, one tense for several, and totally disregarding singular and plural numbers. (p. 10)

With the adjectives he chose, Gonzales made it clear that he was relatively racist and did not hold Gullahs in high regard. Nevertheless, Gonzales did make a significant contribution by including a glossary 1,700 words used by Gullah people. However, Gonzales warned readers that, “The Glossary included in this volume, while making no pretense to absolute accuracy, is offered as a workable list of words in common use by the Negroes of the South Carolina coast” (p. 277). It should also be noted that Gonzales, in his foreword, followed John Bennett and reported that the word Gullah is derived from a tribe in Liberia or derived the word Angola.

Although he has been considered an authority on the English language, the highest educational attainment level of Mencken (1992) was only a high school diploma from the Baltimore Polytechnic Institute. Despite his limited education, Mencken managed to become the editor of *The American Mercury*, editor of the *Smart Set*, journalist for several major newspapers, and the author of a highly regarded treatise on the development of the English language. Following Bennett, Mencken reported that:

The early slaves, of course, retained many words and phrases from their native languages, but they have all disappeared from the speech of their descendants today, save for a few surviving in the Gullah dialect of the South Carolina coast. (p. 113)

According to Mencken (1919, 1936), there were certain “loan words” from African languages that could be found in the English language. Buckra, gumbo, okra, and voodoo are among the loan words Mencken identified. Regarding the Creole language spoken by many Black people in Louisiana, Mencken (1936) has related that, “It is the Negre spoken by the Negroes, or, as they often call it, Congo or Gumbo—a vulgate based on the speech of the white Creoles, but much debased.” Following William A. Read, Mencken said the Creole language in Louisiana consisted of “a highly corrupt French vocabulary, some native African words, and a syntax for the most part essentially African” (p. 639).

In 1910, George Philip Krapp became a professor of English at Columbia University. Krapp had already served one stint there before heading to the University of Cincinnati for two years. Some 15 years later, Krapp (1925) published a study of the English language wherein he looked at its development in the USA. Among the topics he covered was the Gullah language. According to Krapp, he found Gullah to be a dialect of the English language as opposed to it being a Creole language.

In the second decade of the 20th century, Smith (1926), a professor of English at the University of South Carolina, published a study of Gullah wherein he referred to it as “a patois unique among the dialects of the United States . . .” (p. 7). Smith related that there are “two widely-held conjectures” about the origin of the term Gullah. One conjecture held that Gullah is “a shortened form of Angola, the name of an African West Coast district lying south of the Equator and the mouth of the Congo River” (p. 7). The second conjecture held that, “Gullah comes from the name of the Liberian group of tribes known as the Golas living on the West Coast between Sierra Leone and the Ivory Coast” (p. 8). Smith made it clear that he believed the second conjecture was “more probable” (p. 8).

Regarding the historical background of Gullah, Smith (1926) said that his paper drew deeply from John Bennett and Ambrose Gonzales. On the one hand, Smith noted that John Bennett took the position that the “Angola derivation for Gullah is quite without foundation” (p. 8). On the other hand, Smith said that Ambrose E. Gonzales and John G. Williams took the

position that Gullah had an Angola derivation. In the case of John G. Williams, he said that, "Gullah is very probably a corruption of Angola, shortened to Gola, a country of West Africa, and a part of Lower Guinea, from which a great many negroes were brought to this country in the days of the slave trade" (Quoted in Smith, 1926, p. 7). Smith also included a quote by John G. Williams wherein the latter said he heard antebellum Black people make a distinction between a Gullah Black person and a Guinea Black person.⁶

In terms of Gullah as a patois, Smith (1926) posed that Gulla was composed of "a sizable part of the English vocabulary as spoken on the coast by the white inhabitants from about 1700 on . . ." (p. 22). Smith joined another writer in calling Gullah "the worst English in the world" (p. 22). He argued that there were "few survivals of native African words in Gullah . . ." (p. 32). According to Smith, the following 20 words were African or may be African in origin: (1) ki or kai; (2) buckra; (3) nyam; (4) oona; (5) swanga or swoonger; (6) du-du; (7) goober; (8) pinder; (9) cooter; (10) okra; (11) geechy; (12) cymbi; (13) bakalingo; (14) guffer; (15) penepne; (16) da; (17) da-da; (18) malafee; (19) Stepney; and (20) Plat-eye.

During the third decade of the 20th Century, G.B. Johnson (1930), a professor of sociology at the University of North Carolina, released his book on Gullah people on South Carolina's Edisto Island. He informed us that his study covered the cultural background of Gullah and the question of African influences on Gullah. Johnson said that, "This dialect is known as Gullah, as are also the Negroes who speak it. How the word Gullah came to be so applied cannot be determined satisfactorily" (p. 3). He proceeded to relate that Reed Smith theorized that Gullah comes from an ethnic group in Sierra Leone and Ivory Coast known as the Golas. Johnson pointed out that John Bennett held the same theory. He noted that the another held that Gullah derived as a term from Angola. Johnson related that, "Regardless of its true derivation, it came to be applied, not exclusively to one type of Negro, but to the Negroes of the sea-island and coastal region in general" (p. 5).

In terms of Gullah as a language, G.B. Johnson (1930) asserted that, "Gullah has been called the most African of any of our Negro dialects, yet it can be traced back in practically every detail to English dialect speech" (p. 6). Johnson added: "In breaking in new Negroes the white man used a sort of 'baby talk' . . . What the Negro heard, therefore was something more simplified than the English dialect which the white servants and laborers around him used" (p. 8). He further surmised that:

The Negro's almost complete loss of African language heritages is startling at first glance, but slavery as practiced in the United States made any other outcome impossible. In order to accommodate the slave to the routine of plantation life, as well as in the interest of discipline and order, the planters saw to it that new Negroes were distributed so as to work with seasoned slaves. This broke up tribal bonds and made difficult the survival of Africanisms. The learning of English was a practical necessary. It was the only medium of linguistic exchange. Only thus could the slave understand his overseer, converse with his fellows, and comprehend the interesting things which took place about him. So thorough was the language substitution that there now remains only a handful of words which are indisputably of African origin and which have attained to a respectable degree of diffusion. (p. 10)

Regarding the Gullah language, Johnson remarked that, "Some of the features of Gullah grammar were copied directly English dialect, and the rest seems easily explained on the basis of

the simplified or 'baby talk' type of speech used by the whites in teaching the raw slaves to understand English" (p. 35). Thus, Johnson identified himself as a proponent of the baby talk position.

G.B. Johnson (1930) conceded that certain words in Gullah were African, including okra, gumbo, yam, nyam, goober, pinda, cooter, buckra, ki, and oona. He added the words swanga and Gullah to that list. As for the term Geechee, Johnson related that:

In the Savannah section the word *Geechy* is similarly used to designate the Negroes of that region, and it seems likely that it came from the name of a river near Savannah, the Ogeechee. Negroes in the vicinity of this river were called 'Geechy River Negroes, which was finally shortened to Geechy. (p. 59)

In a footnote connected to the paragraph above, Johnson related that Ogeechee was "Of Indian origin" (p. 59). He also stated that, "Professor Smith lists *geechy* as African, but he refers to a different usage, namely, as an adjective in the sense of 'goosey.' I have never encountered geechy used in this sense" (p. 59). Johnson revealed his theory about the origin of the term Geechee in relation to the term Ogeechee. However, Johnson failed to mention the Ogeechee Indians. Johnson made the astounding statement that, "It is probable that in this country the white man has been the medium of conservation and diffusion of these African words more than the Negro has" (p. 59).⁷

Stoney and Shelby (1930) published their *Black Genesis* during the third decade of the 20th century. They opened their book of folk tales with an essay titled "The Family Tree of Gullah Folk Speech and Folk Tales." Although Lorenzo Dow Turner has charged that Stoney and Shelby sought to minimize the fact that Gullah had an African influence, they did state that, "Gullah is the strongest linguistic connection between America and the Antilles and Africa; it links two hemispheres and two eras" (p. ix). Stoney and Shelby posed that, "The branches of the family tree of Gullah are American, the trunk is West Indian and the roots English and African" (pp. ix-x). They argued that, "The Gullah negro can be as Cockney as Samivel Veller, and speak of *werry* and *wegitables*" (p. xviii). Stoney and Shelby also argued that:

What survives of the African influence in Gullah are: a number of rhymes, games, and systems of counting; tricks of the tongue; and a few words in common usage, most of which, so far as we can identify them, come from the Umbundu dialect of Angola. (p. xv).

In their view, the "Umbundu" or "Mbundu" people were a major influence on Gullah as a language.

Looking at the African background of Gullah people and their culture, Stoney and Shelby asserted that:

As a rule these words relate to things of ancient African experience; beliefs that were not derived from and never shared with the white man; or plants and animals that the negro knew as well, or even better than the European. A thorough search of the Low Country would probably yield some twenty or more words of African derivation, of which six or seven are in common use" (p. xv).

In a chart, Stoney and Shelby said that the following Gullah words are African in origin: Buckra (Efik for White person), oonah (Umbundu for you), yoonah (Umbundu for your), nyam (Umbundu for eat), cooter (Umbundu for turtle), pinda (Kisikongo for peanut), goober (Umbundu for peanut), oule (Umbundu for bedbug), and toko (Umbundu for plenty). For Stoney and Shelby, “African music has touched Gullah deeply” (p. xxii). They also posed that, “The other great African contribution with which we are concerned is the folk-story” (p. xxi).⁸

Wooter (1930), writing in the third decade of the 20th century, published his study of Gullah people on St. Helena Island in South Carolina. As G.G. Johnson (1930) has pointed out, Wooter was the director of that initiative which was known as the St. Helena Project. The studies by Wooter, G.G. Johnson, and G.B. Johnson were all done under the aegis of the St. Helena Project. Regarding Gullah, Wooter said that “this strange dialect turns out to be little more than the peasant English of two centuries ago, modified to suit the needs of the slaves” (p. 49). He continued:

From Midland and Southern England came planters, artisans, shopkeepers, indentured servants, all of who had more or less contact with the slaves, and the speech of these poorer white folk was so rustic that their more cultured countrymen had difficulty in understanding them. From this peasant speech and from the “baby talk” used by masters in addressing them, the Negroes developed that dialect, sometimes known as Gullah, which remains the characteristic feature of the culture of the Negroes of South Carolina and Georgia. (p. 49).

Since culture consists of more than language, Wooter may have been partly right.⁹ Many values and norms found on the islands of South Carolina and Georgia could also be found in the western parts of those states and elsewhere because of migration patterns. Gullahs tended to migrate from east to west and even towards the north and south.¹⁰

In the fourth decade of the 20th century, Mason Crum (1940), a professor of religion at Duke University, released his study of the Gullah people. Like Krapp and others, Crum discussed the Gullah language as a social phenomenon. Crum was a descendant of a White slaveholder who he considered to be “a good man” and expressed some disdain for the Reconstruction Period, which led to Gullahs like Robert Small assuming some political and economic power. Although Crum admitted that he found African words in Gullah, he concluded that it was dialect characterized by broken English. Crum did not offer an etymology of the term Gullah or Geechee.¹¹ However, Crum did offer the following list of 10 words he thought were Africa and still being used in 1930: (1) Ki which meant “an exclamation, or used to express wonder;” (2) Buckra which meant “a white man” and po’buckra which meant “a poor white man;” (3) Nyam which meant “to eat;” (4) Yam which meant “sweet potato;” (5) Oona or yoonah which meant “you or your;” (6) Goober which meant “peanut;” (7) Pinder which meant “peanut;” (8) Cooter which meant “turtle;” (9) Okra which meant “the vegetable;” and (10) Plat-eye which meant “a prowling ghost or evil spirit.” (p. 118).

Crum (1940) declared that Gullah “is almost wholly English—peasant English of the seventeenth and eighteenth centuries, with perhaps a score of African words remaining” (pp. 111). He added: “Very early the slaves picked up the dialect of the illiterate indentured servants of the Colonies, the ‘uneducated English’” (pp. 111). Crum asserted that Gullah is “an abbreviated and mutilated English grammar” (p. 121). He also asserted that Gullah was, at least in part, under “English and Scotch dialectal influence through the unlettered bond servants who

came among the slaves” (p. 123). Nevertheless, Crum pointed out that, “Stoney and Shelby think of the very early beginnings of Gullah as a blending of dialects in barracoons of the African Coast” (p. 114). Crum also admitted that the roots of Gullah developed as a pidgin first in Africa and then Gullah was transplanted to the Americas, including the present-day USA and the Caribbean. He referred to the latter as the West Indies.

On the Term Geechee

As used in this paper, the term Geechee refers to a social group of Gullah-speaking Maroons (and their descendants) who joined the Seminole Nation as partisans during their three wars with the USA in the 19th century. The definition used here draws on Jesup (1861a, 1861b); Turner (1941b); and Brown (1941). During March 1940, the American Council of Learned Societies (ACLS) held a conference at Howard University titled “The Interdisciplinary Aspects of Negro Studies.” At a question-and-answer session at the conference, Sterling Brown (1941) asked Lorenzo Dow Turner about the term Geechee. Turner (1941b) stated, in part, that, “I think this name is an Indian word . . .” (p. 79). However, when he published his book *Africanisms in the Gullah Dialect*, Turner (1949) said that the term Geechee had “a probable African origin . . .” (p. 301). Thus, Turner contradicted that which he said some eight years earlier at the ACLS conference.

Many people have read the Turner’s statement on Geechee in his book. However, it appears that a lot of them have never seen his statement on Geechee in the ACLS conference proceedings. This situation has caused many people to repeat the error in the book, including Holloway (1990/2005). The present writer believes that Turner was right in 1941 and wrong in 1949. Geechee is derived from an Indian word, not an African word.

There is ample evidence that Geechee is an Indian word. In Georgia, there is a waterway known as the Ogeechee River. Part of the American Indians known variously as Creek, Muscogee, and Ogeechee lived near the Ogeechee River. The language of the Muscogee people gave birth to the term Geechee. The position of the present writer is that both the term Ogeechee and Geechee come from the Muscogee language. The ample evidence comes from Mooney (1910a), Bartram (1791), Harper (1958), and Jesup (1861a, 1861b). They have all written about some aspects of the American Indian roots of the term Ogeechee. They have also noted that the Ogeechee Indians was one of the tribes and clans within the Creek Confederacy. In the case of Jesup, he has pointed out that the Ogeechee Indians was one of the groups that a part of the Seminole Nation during its Second War with the USA.

Regarding the Ogeechee Indians, Mooney (1910a) has written in the *Handbook of American Indians North of Mexico* that:

Ogeechee. A town or subtribe of the Yuchi, formerly situated at some point on lower Ogeechee r., Ga. The Creeks and other tribes made war on them, and according to Bartram they were exterminated by the Creeks and Carolina settlers (?) on Amelia id., Fla., where they had taken refuge after having been driven from the mainland. (p. 109)

Mooney pointed out that the Ogeechee Indians were attacked by a combination of Carolina settlers and other American Indians. He also pointed out that the Ogeechee Indians were forced out of the Ogeechee River area of Georgia down into Florida on Amelia Island.

Bartram (1791) traveled through Georgia and Florida shortly before the outbreak of the Revolutionary War, and made observations of American Indians and their physical environment. In his report, Bartram stated that:

And they say, also, that about this period the English were establishing the colony of Carolina, and the Creeks, understanding that they were a powerful, warlike people, sent deputies to Charleston, their capital, offering them their friendship and alliance, which was accepted, and, in consequence thereof, a treaty took place between them, which has remained inviolable to this day: they never ceased war against the numerous and potent bands of Indians, who then surrounded and cramped the Indian plantations, as the Savannas, Ogeechees, Wapoots, Santees, Yamasees, Utinas, Icosans, Paticas, and others, until they had extirpated them. The Yamasees and their adherents sheltering themselves under the power and protection of the Spaniards of East Florida, they pursued them to the very gates of St. Augustine, and the Spanish refusing to deliver them up, these faithful intrepid allies had the courage to declare war against them, and incessantly persecuted them, until they entirely broke up and ruined their settlements, driving them before them, till at length they were obliged to retire within the walls of St. Augustine and a few inferior fortified posts on the sea coast. (p. 55)

Bartram made a reference to American Indians in the Creek Confederacy as the “they.” He made it clear that following three languages were observed among American Indians in the Creek Confederacy: (1) Muscogulge, (2) Stincard, and (3) Uches and Savannucas. In terms of those three, Bartram related that he observed “Muscogulge tongue being now the national or sovereign language” (p. 55). The terms Muscogulge Confederacy and Creek Confederacy were seen as synonymous by Bartram. He also used those terms to refer to the same political nation. According to J. Wright (1986), the term Muscogulge later morphed into the term Muscogee in spelling and pronunciation.¹²

Harper (1958) provided an important “Commentary” in the reprint *Naturalist Edition of The Travels of William Bartram*. In his commentary, Harper reported that:

. . . the Ogeechee tribe was a band of Yuchi and this may have been the one which afterwards removed to Florida and settled at Spring Garden by Woodruff Lake. Possibly these Indians stopped upon the Georgia coast long enough to leave a memory of themselves there though could hardly have remained for a sufficient length of time to erect mounds of any magnitude. However, the Ogeechee mentioned here may have been Indians from the mouth of Ogeechee River belonging to the Guale tribe which later settled in Florida north of St. Augustine. The Quaker Dickenson visited their towns in 1699. As to their “destruction” we may say that myth makers have destroyed more tribes than America ever contained. (p. 350)

It was noted by Harper that the Ogeechee Indian information contained in her commentary was supplied by J.R.S., which were the initials of John R. Swanton.

While serving as a general in the Second Seminole War, Jesup (1861b) sent a letter dated January 19, 1837 to Benjamin F. Butler, the Secretary of War. He stated:

I detached Lieutenant Colonel Foster, from Fort Clinch, with five hundred regular troops, Georgia volunteers, and Indian warriors, against the Tallahassee and Ogeechee Indians, who had fled from the Withlacoochee, and have established themselves in the swamps south of the mouth of the Withlacoochee. (p. 826)

Some two days later, on January 21, 1837, Jesup (1861c) sent another letter to Butler. In it, Jesup reported that, “Lieutenant Colonel Foster is in pursuit of the Tallahassee and Ogeechees, south of the Withlacoochee . . .” (p. 827). Jesup, in both letters, identified Ogeechee Indians as partisans of the Seminole Nation.

In addition to providing information to Butler about the Ogeechee Indians, Jesup reported on the Gullah-speaking Maroon partisans of the Seminole Nation to Butler. On December 9, 1836, Jesup (1837a) sent a letter to Butler and stated that, “This, you may be assured, is a negro, not an Indian war” (p. 827). Jesup also informed Butler that the Gullah-speaking Maroon partisans of the Seminole Nation were “perhaps, the most numerous” (p. 820). During the Second Seminole War, which lasted from 1835 to 1842, Gullah-speaking Maroon partisans of the Seminole Nation served as chiefs and captains of their own warriors or served as lieutenants and warriors under American Indian hereditary chiefs and war leaders. The highest-ranking Gullah-speaking Maroon partisan was known to Jesup as Abraham. In a military report, Jesup (1861d) wrote the following about Abraham:

The principal negro chief, supposed to be friendly to the whites; said to be a good soldier and an intrepid leader; he is the most cunning and intelligent negro we have seen; he is married to the widow of the former chief of the nation. (p. 852)

Jesup was very clear about the groups active in the Seminole Nation, including the Ogeechee Indians and the Gullah-speaking Maroon partisans. His reports reflect that clarity. It should be noted that the reports of Jesup refer to Gullah-speaking Maroon partisans simply as “Negroes.”

Webster’s Third New International Dictionary and *The Oxford English Dictionary* are widely acknowledged as two of the most authoritative of the English language. Although both dictionaries do not offer an etymology of the term Ogeechee, they have offered definitions of the term Geechee that leave a lot to be desired. Despite the shortcomings of their definitions of the term Geechee, neither tries to make the case that the term Geechee is an African word. In *Webster’s Third New International Dictionary*, the Merriam-Webster Inc. (1986) has defined the term Geechee in the following way:

geechee . . . *n -s usu cap* [fr. the *Ogeechee* river, Ga.] 1 : a dialect containing English words and words of native African origin spoken chiefly by the descendants of Negro slaves settled on the Ogeechee river in Georgia—compare GULLAH 2 : a Geechee-speaking Negro (p. 943)

The definition of the term Geechee offered by the Merriam-Webster Inc. referred to the language first and to the people second. It also stated that the term Geechee is derived from the Ogeechee River.

Writing in *The Oxford English Dictionary*, Simpson and Weiner (1989) offered a definition of Geechee as follows:

Geechee . . . U.S. dial. [f. the name of the Ogeechee River, Georgia.] (See quot. 1934.) Also a derogatory term for a Negro of the southern United States. Cf. Gullah.
1926 *Nat. Geogr.* Sept. 287 Among the negroes living on the Ogeechee River a patois, developed in ante bellum days, has persisted. . . The origin of ‘Geechee’, as the patois is called, is explained by the fact that slaves employed on the old rice plantations were more less isolated and rarely conversed with their white owners, with the result that their knowledge of English words was bizarre. The ‘Geechee’ speaks in a sort of staccato and always seem excited when talking. **1934** Webster, *Geechee*. A dialect, originally of Negro slaves on the Ogeechee river, Georgia, formed of English and native African words. 2. One who speaks Geechee. (p. 417)

The definition provided by Simpson and Weiner states that the term Geechee is derived from the Ogeechee River and identified it as a derogatory term for Black people in the South. Simpson and Weiner acknowledged that their definition was based an article by Gleason in the *National Geographic* and the definition offered by Merriam-Webster Inc.

Within the Seminole Nation, the American Indians referred to Gullah-speaking Maroon partisans and other Black people as “Estalustee” as pointed out by Moore-Willson (1910), Littlefield (1977), and J. Wright (1986).¹³ The position of the present writer is that the war-names Geechee and Geechees were given to Estalustee in the Seminole Nation by American Indians in the Seminole Nation to distinguish the Estalustee who fought alongside them for over 100 years from the other Estalustee. The position of the present writer also is that their American Indian comrades-in-arms gave them the war-names Geechee and Geechees in honor of the Ogeechee clan whose numbers were decimated by the treachery of the European colonists. Swanton (1928), Mahon (1967), Opala (1981), and Sturtevant (1955) have all noted the Creek-Seminole custom of bestowing honorary war-names on individuals and groups. MacCauley (1887) observed that Seminoles in Florida continued the tradition of bestowing honorary names on groups and clans after the Emancipation Proclamation took effect.¹⁴

On the Term Gullah

The term Gullah, as used in this paper, refers to antebellum Black men, women, and children who were born in Africa or elsewhere and came to the USA in bondage and the language they brought with them. Gullah people primarily came from the following areas: Senegal (Wolof); Sierra Leone (Mende); Ghana (Akan); Nigeria (Ibo, Ibibio, Yoruba); and Angola (Mbundu). Gullah also refers to the pidgin or Creole language the Gullah people brought with them from Africa. It was a mixture of Pidgin English, African languages (Wolof, Mende, Ibo, Ibibio, Mbundu, etc.), American Indian words, and Spanish words. This definition draws on Lorenzo Dow Turner (1941b, 1949) and the Savannah Unit (1940/1972), which was a part of the Works Project Administration.

During the late 1930s, the Savannah Unit (1940/1972) conducted interviews with formerly enslaved people in Georgia. One of those former enslaved people was an elderly Savannah preacher named Tonie Houston, who was a Gullah. During the interview, the interviewer asked Tonie Houston about the meaning of the term Gullah. Tonie Houston responded by telling the interviewer that, “All duh people wut come frum Africa aw obuhseas wuz call ‘Golla,’ and dey talk wuz call ‘Golla’ talk.” Hence, Tonie Houston made it clear that the term Gullah referred to Black people who came to the USA in bondage from Africa or

elsewhere and the language they brought with them. A key thing about Tonie Houston is that he represented an emic voice speaking about Gullah versus an etic voice.

Some 30 years before the Tonie Houston interview, John Bennett (1908) advanced a theory about the origin of the term Gullah. According to Bennett, the term Gullah was derived from the name of an ethnic group (tribe) in Liberia or derived from the name of the country Angola. In a later work, Gonzales (1922) explained that, "None of the encyclopedias mentions the Gullah Negroes, nor does the name appear in the dictionaries" (p. 9). Then, Gonzales proceeded to insinuate that he agreed with the theory advanced by Bennett. Both Bennett and Gonzales were White men with an etic viewpoint.¹⁵

As mentioned above, *Webster's Third New International Dictionary* and *The Oxford English Dictionary* are widely acknowledged as two of the most authoritative of the English language. Like they did with the term Geechee, both dictionaries have published definitions of the term Gullah. Writing in its *Webster's Third New International Dictionary*, the Merriam-Webster Inc. (1986) has given the following definition to the term Gullah:

gullah . . . *n* -s *usu cap* 1 : one of a group of Negroes inhabiting the sea islands and coastal districts of So. Carolina, Georgia, and a small part of northeastern Florida 2: the language of the Gullahs (p. 1011)

Merriam-Webster Inc., regarding its definition of the term Gullah, referred to the people first and the language second. It did not attempt to state the derivation of the term Gullah.

Simpson and Weiner (1989), in *The Oxford English Dictionary*, defined the term Gullah in the following manner:

Gullah . . . *U.S.* Also Golla, Goolah. [Conjectured to be either a shortening of Angola, or from a Liberian group of tribes known as Golas.] Used attrib. or absol. To designate Negroes living on the sea-islands and tide-water coastline of South Carolina and South Carolina and Georgia, and the dialect spoken by them.

1739 *South-Carolina Gaz.* 12 May 2/2 Run away a short well set Negro Man, named Golla Harry. **1822** *Account Late Intended Insurrection among Blacks of this City* (Corporation of Charleston) 22 These disclosures . . . were obtained from Harry Haig (whose confession and subsequent testimony went to implicate a corps of Gullah or Angola negroes). **1835** W.G. Simms *Partisan* 224 To their arts the Gullah and Ebo negroes . . . added their spells and magic in no stinted quantities. **1838** *Southern Lit. Messenger* IV. 641/1 The etymology of all which terms . . . is quite as untraceable as that of any terms in the Goolah negro dialect. **1896** J.G. Williams *Ole Plantation* Pref. p. v, The older ones of that set of negroes . . . speak as pure Gullah as their grandfathers. . . . They seem to have been scarcely affected in their low-country Gullah speech [etc.] . . . (pp. 944-945)

In their definition of Gullah, Simpson and Weiner said that the term Gullah may be derived from a shortening of Angola or a Liberian ethnic group known as the Golas. Among other things, Simpson and Weiner referred to a 1739 citation in the *South-Carolina Gazette*; an 1822 citation related to the Denmark Vesey insurrection; an 1835 citation related to W.G. Simms; an 1838 citation in the *Southern Literary Messenger*; and an 1896 citation related to J.G. Williams.

P.H. Wood (1974) has offered a discussion of the etymology of the term Gullah. Writing in his *Black Majority*, Wood said:

The etymology of the term “Gullah” itself remains in some doubt. It could represent an abbreviated form of Angola, which would fit with the import data cited in the previous note. But it could also derive from the Gola tribe of the Windward Coast, which would relate to expressed preferences for slaves from that rice-growing region. The most likely answer is that both sources contributed to the word, and that it has a multiple etymology . . .” (p. 172)

P.H. Wood has related that his discussion of the etymology of Gullah drew upon “the principle of multiple etymologies” advanced by Frederic G. Cassidy to explain that which might be overlapping origins.

Barnes and Steen (2012) posed that the term Gullah became more widely used after the Emancipation Proclamation. They explained that the “earlier usage was in the context of origins, but after 1865 Gullah begins to refer to African Americans as a group” (p. 196). According to Barnes and Steen, “the term was often used in a pejorative manner” (p. 196). To illustrate their points, Barnes and Steen point to examples of usage from 1867, 1869, 1892, and 1894.

Other Key Concepts Related to the Exploration of the Terms Geechee and Gullah

Some key terms related to the exploration of the terms Geechee and Gullah are catching sense, collective memory, social group, Maroon, outlier, partisan, and Seminole Nation. Catching sense, as a term, refers to a unique process of socialization found among Black people with a Geechee and Gullah heritage wherein they will learn certain values, norms, and material culture during their formative years (i.e., ages 2 to 12). As child growing up, I heard my mother and others use this term to tell another person “to straighten up and fly right.” My mother and others would also use the folk saying, “A hard head makes a soft behind.”

The term collective memory refers to the shared memories of a social group, including key social facts and events. This definition draws on Maurice Halbwachs (1925/1992) who stated that:

. . . the greatest number of memories come back to us when our parents, our friends, or other persons recall them to us. . . . it is in society that people normally acquire their memories. It is also in society that they recall, recognize, and localize their memories. (p. 38).

The definition of collective memory in this paper also draws on Olick, Vinitzky-Seroussi, and Levy (2011). Olick et al. have informed us that:

While Halbwachs is often considered the founding father of contemporary memory studies, we demonstrate that his ideas did not emerge from a vacuum and that he was not the only scholar whose writings have contributed to, or should be seen as contributing to, contemporary memory studies; tracing out alternate sources of scholarly interest in

memory, and the strange history of Halbwach's canonization as a founding father, we argue, produces a richer and more coherent foundation for contemporary efforts. (p. 5).

In their reader on collective memory, Olick, Vinitzky-Seroussi, and Levy included several essays or writings that touched upon the Black experience in the USA, Brazil, and Africa.¹⁶

As a term, a social group refers to a set of two or more individuals who share a sense of common identity, a sense of belonging, and they have interaction on a regular basis. Members of a social group are often recruited according to specific criteria of membership and are bound together by a set of membership rights and mutual obligations. The definition of a social group offered here draws on Du Bois (1898); Small (1905); and Jary and Jary (2000).¹⁷ For Du Bois, social groups were important for looking at social problems at the macro, middle, and micro levels of analysis. Du Bois stated that Black people could be studied as a social group using an interdisciplinary and multidisciplinary approach involving (1) historical study; (2) statistical investigation; (3) anthropological measurement; and (4) sociological interpretation. In the case of Jary and Jary, they informed us that:

A social group exists when members engage in social interactions involving reciprocal roles and integrative ties. . . . In terms of membershipship, social groups may be relatively open and fluid (e.g. friendship groups), or closed and fixed (e.g. Masonic Lodges). (p. 257)

Jary and Jary continued:

Any social group, therefore, will have a specified basis of social interaction, though the nature and extent of this will vary greatly between groups. Social groups of various types can be seen as the building blocks from which other types and levels of social organization are built. (p. 257)

Du Bois and Small, as well as Jary and Jary, saw the relationship between social groups and social organization. Like Jary and Jary, Du Bois and Small saw social groups as the building blocks for social organization.

The term Maroon refers to antebellum Black men, women, and children who ran away from slavery singly, in pairs, and in larger groups, and organized themselves into communities like the Palmares in Brazil, the Windward and Leeward Maroons of Jamaica, and the Djuka and Saramakas of the Guianas. Maroons created their own food supply by raising crops. They also offered havens to other Black fugitives and engaged in attacks upon plantations, townships, and cities. In addition, more than 50 Maroon communities existed in the present-day USA and they were located in Southern swamps and forests. The definition of Maroon offered here draws on Morse (1822); Du Bois (1903); Aptheker (1939); Porter (1932, 1943, 1964); Franklin (1947/1980); L. Bennett (1962/1993); Blassingame (1972/1979); Price (1979); Franklin and Schweninger (1993); Rivers (2000); Carney (2001); and Dixon (2014).

As used here, the term outlyers refers to antebellum Black men, women, and children who ran away from slavery with the intention of "outlying" on a temporary basis. In contrast to outlyers, Maroons intended to stay free on a permanent basis. Outlyers were active in every state in the South where slavery was present. For example, Virginia even felt compelled during the colonial period to pass "An act for suppressing outlying slaves" (Hening, 1923, p. 86). This

definition of outlyers draws on Hening (1823) as well as Franklin and Schweninger (1993). The term partisan refers to an individual who participates in a guerrilla warfare campaign to achieve both military and political objectives. The definition of partisan provided here draws on the ideas of Porter (1946).

The term Seminole Nation refers to a political confederation established during the 18th century by American Indians known variously as Creeks, Muscogees, Miccosukkees, and Ogeechee. It included a critical mass of Gullah-speaking Maroon partisans from South Carolina and Georgia by 1816. It also included both Black Chiefs and American Indian Chiefs. The Seminole Nation fought three wars against the USA: First Seminole War 1816-1818, Second Seminole War 1835-1842, and Third Seminole War 1855-1858. The definition of Seminole Nation used here draws on J.L. Williams (1837); Sprague (1848); Porter (1971, 1996/2013); L. Bennett (1962/1993); Du Bois (1985); and Dixon (2014).

Implications of This Research on the Terms Geechee and Gullah

As for the implications of this research on the terms Geechee and Gullah, there are two significant consequences. One significant consequence is that it sheds light on the concepts of Geechee and Gullah. On the one hand, the term Geechee refers to a social group of Gullah-speaking Maroons (and their descendants) who joined the Seminole Nation as partisans during their three wars with the USA in the 19th century. On the other hand, the term Gullah refers to antebellum Black men, women, and children who were born in Africa or elsewhere and came to the USA in bondage, and the language they brought with them.

Cooper (2017) has written in her book *Making Gullah* that, “Cornelia Walker Bailey, Betty Cooper, Paul Walker, Joe Johnson, and Catherine Hillery—all Sapelo Islanders who were interviewed for this book—did not call themselves ‘Gullah,’ and said that whites used the term to describe them” (p. 224). She also stated that “some noted that ‘Geechee’ was used as an insult—akin to being called ‘backwards’ and ignorant” (p. 224). Cooper pointed out that Cornelia Walker Bailey made that following statement in her memoir: “There’s not a thing wrong with ‘Gullah’ if that’s what you identify with, but a lot of us, including me, have always thought of ourselves as Geechee and we want to be known by our traditional name. Matter of fact, we’re Saltwater Geechee” (Quoted in Cooper, 2017, p. 224).

Before she died in 1990, Cornelia Walker Bailey and a co-author, published her autobiography titled *God, Dr. Buzzard, and the Bolito Man* (Bailey & Bledsoe, 2000). Cornelia Walker Bailey’s autobiography noted the theory that the term Geechee may be derived from the Kissi ethnic group (i.e., tribe) in Liberia. According to the autobiography, “. . . everyone in these islands of African descent became known as Geechee or Gullah” (p. 4). The autobiography continued:

As to the labels “Geechee” and “Gullah,” there’s a line of thinking that they came from two neighboring tribes in West Africa—the Kissi, pronounced “Geezee,” who lived where the modern-day countries of Sierra Leone, Liberia and Guinea converge; and the Gola, a tribe on the Sierra Leone-Liberia border. A lot of members from both of these tribes were brought to these islands, and while it has never been proven—the people who study such things will be arguing about it for years to come—it could very well be that what we were called stemmed from the two tribal names.

It used to be said that black people on the Georgia Sea Islands were Geechee and those on the South Carolina islands were Gullah, but there were always people in areas like Charleston who called themselves Geechee. I think it just depended on the area you were from and what you preferred to be called. (p. 4)

Her autobiography noted that Cornelia Walker Bailey identified herself as a Saltwater Geechee. Cornelia Walker Bailey made it clear that she leaned toward the position that the term Gullah derived from the Gola people and that the term Geechee derived from the Kissi people. However, as discussed below, there is ample evidence that Gullah may be derived from Angola and that Geechee may be derived from the Ogeechee Indians and the Gullah-speaking Maroons in the Seminole Nation. For example, colonial maps of the state of Georgia indicate that the Ogeechee River had its name long before there was a critical mass of Black people in the state. A case in point is “A Map of the County of Savannah,” which appears in a book by Jones (1888) and shows that the Ogeechee River had its name long before 1750.¹⁸

The upshot is that enslaved people were not allowed to be held by White people in Georgia until 1751 although there were some Gullah-speaking Maroons in Georgia who had escaped from slavery in South Carolina by using the Palachacolas crossing and trail located in Hampton County.¹⁹ It should also be noted that one of Cornelia Bailey’s grandfathers was a Creek Indian from the Okefenokee Swamp wherein many Ogeechee Indians fled after White colonists invaded the Ogeechee River area in 1733. There is a great possibility that Cornelia Walker Bailey’s grandfather was an Ogeechee Indian and a member of the Seminole Nation and the information was not passed down to her (C. Bailey, 2016; P.H. Wood, 1974; Cobb, 2009).²⁰

Creel (1988) was an important observer of the Gullah and Geechee cultural heritage before Melissa L. Cooper and Cornelia Walker Bailey released their books. Looking at the Gullah and Geechee cultural heritage, Creel related:

The name “Gullah” is generally believed to be a shortened form of Angola. Africans from the Kongo-Angola region, Bantu-speaking peoples, were imported in large numbers during Carolina’s early colonial history. . . . Winfried Vass, in *The Bantu Speaking Heritage of the United States*, points out that the ruler of the Mbundu nation in Central Africa was called the Ngola, from which the Portuguese named the colony. Vass suggests that this name was used by Europeans to refer to slaves from the Angolan ports. Her theory implies an ethnic identification retained by BaKongo peoples.

Another theory also suggests that the name was group-initiated, yet from a different ethnic source. “Golla” was used in the eighteenth century while “Gullah” was a nineteenth-century term for slaves in the coastal region of South Carolina. A very large group of Africans from the Liberian hinterland were called Golas, sometimes spelled “Goulah.” Chapter 1 discusses their importation into the Carolina Lowcountry and Georgia during a period of rapid growth and settlement. Golas and neighboring Gizzis (also called Kizzis or Giggis) were two of the largest African ethnic groups preyed upon by domineering Mende, Vai, Mandingas, and others. (pp. 15, 17)

In her discussion, Creel identified two theories about the term Gullah. One of those theories holds that the term Gullah is derived from Angola. The other theory holds that the term Gullah is derived from the Gola people in Liberia.

Although she informed us that there are “a number of problems with Turner’s study,” Creel (1988) followed him in her discussion of the terms Gullah and Geechee. Regarding the term Geechee, Creel wrote:

African-American slaves who inhabited the Georgia coast were called Geechees, but had essentially the same culture as Gullahs. Linguistically speaking, Turner uses both terms interchangeably. He lists *gisi* as Mende and defines it as “a language and tribe of the Kissy country (Liberia).” Both Golas and Gizzis shared the same cultural institutions—Poro and Sande—as indeed did the Mende, Vai, Bullom, and others over a wide geographical area. Today *Geechee* is a folk term, generally used as a provocation. In this context it means “country.” The term is generally used between intimates in a joking manner, or intended a challenge to a fight. (p. 18)

When discussing the term Gullah, Creel took on a theory of the term Gullah proposed by Reed Smith and reported that:

One early twentieth-century white South Carolinian, Reed Smith, wrote extensively about Gullah dialect, maintaining that the term refers to the Golas of Liberia. His suggestion alone proves nothing. But further research demonstrates its plausibility, or at least the possibility of two complimentary original derivations” (p. 17)

For Creel, a multiple etymology is referred to as two complimentary original derivations. Creel took the position that the term Gullah may have a multiple etymology. Although Creel did not make it clear, the same may be true of the term Geechee. Furthermore, it could be that Geechee meant one thing in the 19th century within the Seminole Nation and another thing in the 20th century within the racist mainstream media in the USA.

During the late 1980s, the present writer interviewed his mother who identified herself as a “Freshwater Geechee” and saw her Geechee and Gullah heritage as a source of pride and not shame. She was the type of Black woman who rejected the notion that Geechee meant backward and ignorant. The present writer also published a book wherein he shed light on the Geechee and Gullah heritage of his Morgan-Frazier family clan and stated that it should be a source of pride and not shame. In that book, Cromartie (2013a), the present writer, said:

Certain institutions within the mass media have taught Black people to engage in self-hatred and contempt for their own cultural heritage. Sadly, some members of the Morgan-Frazier family clan have not been able to escape that social phenomenon. However, there are members of the Morgan-Frazier family clan who have managed to escape that social phenomenon and embraced our Geechee and Gullah heritage. For example, Julia Frazier Cromartie Boyd, my mother proudly described herself to me as a freshwater Geechee as opposed to a saltwater Geechee. My mother, a former packer in a Brunswick, Georgia shrimp factory, used the term Saltwater Geechee to refer to cultural insiders living on Georgia’s barrier islands and coastal counties. She used the term freshwater Geechee to refer to cultural insiders living within inland counties like Wayne, Ware, Liberty, and elsewhere. My mother took the position that one of the only significant differences between Saltwater Geechees and Freshwater Geechees involves the location (i.e., place of residence). For her, the cultural heritage of Saltwater Geechees

and Freshwater Geechees consists of the same basic traits. When it comes to food, both groups tend to rely heavily on a rice diet. This norm can be traced back to Africa. My mother informed me in 1987 that some of our relatives with the surnames Lee and Johnson still lived on St. Simons Island. (p. 13)

White writers like Graves (1926) and G.G. Johnson (1930) have published articles and books wherein they associated the terms Geechee and Gullah with being backward and ignorant. The time has come for Black people and others to follow the path of Cornelia Walker Bailey and Julia Frazier Cromartie Boyd in terms of embracing the terms Geechee and Gullah as a source of pride and not shame.

A second significant consequence is that it sheds light on the concepts of Afro-centric and emic. The term Afro-centric refers to an analysis wherein Black people would place Africa and people of Black African descent at the center rather than the periphery. The term emic refers to an inside perspective or the view of an insider in contrast to the term etic which is an outside perspective or the view of an outsider. The theoretical framework for this paper was informed by those two concepts.

A third significant consequence is that it sheds light on catching sense, collective memory, social group, Maroon, outlyer, partisan, Geechee, Gullah, and Seminole Nation. Catching sense, as a term, refers to a unique process of socialization found among Black people with a Geechee and Gullah heritage wherein they will learn certain values, norms, and material culture during their formative years (i.e., ages 2 to 12). The term collective memory refers to the shared memories of a social group, including key social facts and events. As a term, a social group refers to a set of two or more individuals who share a sense of common identity, a sense of belonging, and they have interaction regularly. The term Maroon refers to antebellum Black men, women, and children who ran away from slavery singly, in pairs, and larger groups, and organized themselves into communities like the Palmares in Brazil, the Windward and Leeward Maroons of Jamaica, and the Djuka and Saramakas of the Guianas. As used here, the term outlyers refer to antebellum Black men, women, and children who ran away from slavery with the intention of “outlying” on a temporary basis. The term partisan refers to an individual who participates in a guerrilla warfare campaign to achieve both military and political objectives. The term Seminole Nation refers to a political confederation established during the 18th century by American Indians known variously as Creeks, Muscogees, Miccosukees, and Ogeechee.

Summary and Conclusion

This paper aimed to examine the origins and development of the terms Geechee and Gullah from an emic perspective and an Afro-centric approach as an exploration in catching sense (i.e., gaining knowledge). It has also examined definitions of the terms Afro-centric, emic, catching sense, collective memory, social group, Black people, Maroon, outlyer, partisan, and Seminole Nation. In addition, it has covered the implications of this research on the terms Geechee, Gullah, and related concepts. The research in this paper has utilized a mixed-methods approach involving the case study method and the observation method.

In her introduction to *Drums and Shadows*, Granger (1940/1972), the supervisor of the Savannah Unit of the Georgia Writers' Project, posed that, “The place name, Geechee, derived from Ogeechee River, near Savannah, is also used locally to designate the Negroes of this district” (p. xxii). Granger did not explain where she got her information from. She also failed

to explain why some Gullahs became known as Geechees. Granger overlooked or ignored the fact that a group of American Indians were known as the Ogeechee and occupied the Ogeechee River area when James Edward Oglethorpe led White colonists into Georgia.

Further, Hodges (1971) stated that he developed a hypothesis and theory related to how Gullahs devised a technique for losing the hound dogs while being chased during the enslavement period. Hodges said that he “hypothesize[s] that the procedure for losing the hounds was developed originally by the field slaves on the large rice plantations in the area . . .” (p. 73). In this paper, the present writer has developed a hypothesis and theory based on the evidence that the term Geechee, as an identifier for some Black people, was developed originally as a war-name during the Seminole Wars to distinguish “Estelusti” who fought as partisans in the Seminole Nation from others who did not. In conclusion, every original Geechee was a Gullah, but not every Gullah was a Geechee.²¹

Notes

1. For discussions of my Geechee background received from a lineage through my mother, see Cromartie (2013a, 2013b, 2013c). For discussions of my Gullah background received from a lineage through my father, see Cromartie (2016a; 2016b). As I stated in my book *Morgan-Frazier Family Clan: Chronicles of a Black Family with a Geechee and Gullah Heritage in Essays, Interviews, Research Reports, Documents, and Photographs*, my mother Julia Frazier Cromartie Boyd proudly referred to herself as a Freshwater Geechee. I also wrote the following in my book:

Certain institutions within the mass media have taught Black people to engage in self-hatred and contempt for their own cultural heritage. Sadly, some members of the Morgan-Frazier family clan have not been able to escape that social phenomenon. However, there are members of the Morgan-Frazier family clan who have managed to escape that social phenomenon and embraced our Geechee and Gullah heritage. For example, Julia Frazier Cromartie Boyd, my mother proudly described herself to me as a Freshwater Geechee as opposed to a Saltwater Geechee. My mother, a former packer in a Brunswick, Georgia shrimp factory, used the term Saltwater Geechee to refer to cultural insiders living on Georgia’s barrier islands and coastal counties. She used the term Freshwater Geechee to refer to cultural insiders living within inland counties like Wayne, Ware, Liberty, and elsewhere. My mother took the position that one of the only significant differences between Saltwater Geechees and Freshwater Geechees involves the location (i.e., place of residence). For her, the cultural heritage of Saltwater Geechees and Freshwater Geechees consists of the same basic traits. When it comes to food, both groups tend to rely heavily on a rice diet. This norm can be traced back to Africa. My mother informed me in 1987 that some of our relatives with the surnames Lee and Johnson still lived on St. Simons Island. (p. 13)

The terms Saltwater Geechee and Freshwater Geechee have been acknowledged by Cornelia Walker Bailey and the role of rice as among Geechees and other Gullahs have been acknowledged by Judith A. Carney. Cornelia Walker Bailey has written that, “Here on the Georgia islands, Saltwater Geechee was what we called ourselves, and black people who lived about thirty miles inland, around freshwater, were called Freshwater Geechee” (Bailey &

Bledsoe, 2000, p. 5). In contrast, Carney (2001) has identified rice as “a favored dietary staple” (pp. 105, 159). Carney also noted the presence of “rice-based cuisines” among Black people in various parts of the Americas (p. 196). For the certificates I received from AfricanAncestry.com in 2016, see Figure 1 and Figure 2.

2. For discussions of the historical development of the Geechees and other Gullahs as important social groups within the Black population in the USA, see Cromartie (1987, 2011a, 2011b, 2013a, 2013b, 2013c, 2020a, 2020b, 2021a, 2021b).

3. Sandomir (2017) has noted that Keith A. Baird and Mary A. Twining, who was also known as Mary Twining Baird, were married to each other. Keith A. Baird was a native of Barbados who moved to the USA in 1947 and died in Atlanta, Georgia on July 13, 2017, at the age of 94. It should also be noted that a host of Gullahs have published books about their Gullah heritage wherein they cite Turner or do not cite him. Those Gullahs include Daise (1986, 2007); Afrika (1999); Goodwine (Goodwine & The Clarity Press Gullah Project, 1998); C. Bailey (Bailey & Bledsoe, 2000); E. Frazier (2006, 2010); E.S. Campbell (2008); Cromartie (2013a); Manigault-Bryant (2014); and Cooper (2017). Daise does not cite or acknowledge Turner in either of his books. Afrika does not cite or acknowledge Turner in his book. Goodwine does not cite or acknowledge Turner in his book. Frazier does not cite or acknowledge Turner in either of his books. Bailey cites and acknowledges Turner in her book. She also explained that Turner “came to Sapelo and that he got some of his information from Katie Brown, Uncle Shed, Charles Hall, Frank’s grandfather Balaam Walker, Tom Lemon of the Lemon family, and Sonny Dunham, the minister who married Mama and Papa” (p. 314). Frazier does not cite or acknowledge Turner in either of his books. Campbell does not cite Turner in his book. However, Campbell did add him to a list of people who have written about the Gullah heritage. Campbell also informs us that people with a Gullah heritage have been subjected to educational institutions wherein “the Euro centric curricula essentially suppressed Africanisms among the students” (p. 9). According to Campbell, “When my older siblings and other relatives would return after a full year at Penn School there was no trace of their Gullah speech, although peas, sweet potatoes, and rice remained among their favorite foods” (p. 9). In an article, Campbell (2010) related that, “At school our Gullah Geechee language was vigorously denounced” (p. 285). I, J. Vern Cromartie, cite Turner and acknowledge him in my book. Manigault-Bryant cites and acknowledges Turner in her book. Cooper cites and acknowledges Turner in her book. She explained that, “All of my life, Sapelo Islanders were simply family—mother, grandparents, aunts, uncles, and cousins” (p. 10). Further, for an important article and two important book introductions that contain the views of additional scholars who have stood on the shoulders of Turner, see Skinner (1972), Blake (Jackson, Slaughter, & Blake, 1974) and Joyner (1986). Whereas Joyner wrote as a White scholar, Skinner and Blake wrote as Black scholars. Although he was born in Mount Vernon, New York, Blake has an “origin” on Johns Island, South Carolina, according to Campbell (2008, p. 155). During 2001, *The Black Scholar* published an issue with several articles that acknowledged the work of Turner. See H. Frazier (2011); E.S. Campbell (2011); A.M. Amos (2011); and Klein (2011).

4. I draw heavily on the insights of Turner (1949) in my discussion below of John Bennett, Ambrose Gonzales, George Krapp, Henry Mencken, Guy B. Johnson, Samuel Gaillard Stoney, Gertrude Mathews Shelby, and Mason Crum. Turner said that those authors “undertook the task

of interpreting Gullah, apparently, without feeling the need of acquiring some knowledge of the Negro's African linguistic background" (p. 11). He considered that a major shortcoming in the analyses they offered. It should be noted that Turner credited Parsons (1923), as well as M.J. Herskovits, F.J. Herskovits, and Mieczyslaw Kolinski (Herskovits, Herskovits, & Kolinski, 1936), with pointing out "striking similarities between the culture of the New World Negro and that of West Africans" (p. 302). Turner also credited M.J. Herskovits (1941b) with doing the same in *The Myth of the Negro Past*.

5. For more information about the term Buckra, see Price (1979) and Carney (2001) as well as Smith (1926), G.B. Johnson (1930), Stoney and Shelby (1930), Crum (1940), and Turner (1949). Cf. Shelby and Stoney (1930).

6. The statements by J.G. Williams (1895a) comes from his book titled *De Ole Plantation*. J.G. Williams was a White preacher in the Charleston area, wherein he became one of the first, if not the first, to advance a theory about the origin of the term Gullah. J.G. Williams declared in *De Ole Plantation* that Gullah "is very probably a corruption of Angola, shortened to Gola, a country of West Africa, and a great many negroes were brought to this country in the days of the slave trade" (p. xi). Also, J.G. Williams said in *De Ole Plantation* that he heard "old plantation negroes" in South Carolina make a distinction between "Gullah negroes" and "Guinea negroes" (p. xi). For another work by him which focuses primarily on the origin of the term Gullah, see J.G. Williams (1896b).

7. Some 40 years after he released his book regarding Gullahs on St. Helena Island, G.B. Johnson (1980) published an essay wherein he made it clear that many of his views had not changed. G.B. Johnson stated that, "After 40 years I would make only a slight modification of the earlier view that African traits were relatively scarce in the Gullah dialect, and I would still insist that in the long-run acculturation process the contribution of African languages to American English will be almost nil" (p. 418). However, G.B. Johnson admitted that, "It would be foolish indeed to contend that no African influences exist today in the speech of the Negro American . . ." (p. 422). G.B. Johnson argued that "on St. Helena—and, I judge, on Edisto and other easily accessible islands—the dialect has all but disappeared during the past 25 years" (pp. 419-420). He attributed that development to the breakdown of isolation, technology, and education. In the area of education, G.B. Johnson said that he supported Black people being taught English as a second language to address the needs of what he termed "underprivileged" Black people with a "speech problem" (pp. 423). G.B. Johnson reported that "speech laboratories in which English is taught as a second language have been started around the country in an effort to improve the communication skills of people whose speech patterns are a great handicap" (p. 423). Further, G.B. Johnson was married to G.G. Johnson, a fellow researcher who was attached to the Institute for Research in Social Science at the University of North Carolina. G.G. Johnson (1930) published a book on the social history of the Sea Islands wherein she echoed similar sentiments to her husband. In her book, G.G. Johnson stated that:

On St. Helena Island, where there were some two thousand slaves to a little more than two hundred whites, the Negroes learned very slowly the ways of the whites. Their mastery of English was far less advanced than that of the Piedmont slaves. They spoke a garbled English, imperfect words and expressions which they and their parents and

grandparents had learned from the few whites with whom they had contact. Their speech mystified the northern missionaries who came to the Island after the Federal occupation in 1861. (p. 128)

G.G. Johnson pointed out that the Gullah people on St. Helena Island used the term “buckra” to refer to White people (p. 130). She also pointed out that the Gullah people on St. Helena used the term “swonga” to refer to Black people who were plantation drivers, plantation house servants, plantation mechanics, plantation religious leaders, and root doctors. G.G. Johnson explained that the social classes among the enslaved Black people on St. Helena Island were as follows: “drivers and mechanics stood at the head, followed by the house servants, and at the bottom of the scale stood the field hands” (p. 130).

8. In the case of Stoney, he was a native of South Carolina and a cousin of John Bennett. He also served a stint as the president of the South Carolina Historical Society. Shelby was a native of Illinois and wrote many articles for such magazines as *Harper's*, *Century*, *Outlook*, *New Republic*, *Theatre Arts Monthly*, *Bookman*, and *Nation*. From 1917-1918, Shelby served as the managing editor of the newsletter of the Woman's Council of National Defense. The biographical information comes from their book *Black Genesis* (Stoney & Shelby, 1930). It should also be noted that Shelby and Stoney (1930) collaborated on a novel titled *Po' Buckra*, which had a South Carolina setting.

9. For paintings and sculptures by Gullahs, see Green (1996) and Thompson (1979). For collections of folk tales from the Gullah culture, see Harris (1880, 1883) and C.C. Jones, Jr. (1888, 2000). For folk medicine developed by the Gullahs, see Mitchell (1978). For the food cuisine developed by the Gullahs, see Smart-Grosvenor (1970); and Robinson and Underwood (2007). For “root men” and “root women” among the Gullahs, see Hyatt (1970); Thompson (1979, 1983); Moore (1980); and C. Bailey (Bailey & Bledsoe, 2000). For music among the Gullahs, see Starks (1980) and Lotson (2008).

10. See Kiser (1932) for a scholarly discussion related to some Gullahs who migrated to the north. Jim Brown, who was born on St. Simons Island in Georgia and migrated to New York as an adolescent, has offered a very personal study of a Gullah who went to the north. In 1989, the autobiography of Jim Brown was published. It was co-authored by Steve Delsohn. According to Brown, “Like many Southern blacks, my mother migrated to the North, where she had a steady job lined up, as a maid on Long Island” (Quoted in Brown & Delsohn, 1989, p. 49). Brown added: “. . . I remained where I was born, on St. Simons Island, a quiet, dreamy islet just off the southern coast of Georgia” (Quoted in Brown & Delsohn, 1989, p. 49). For a discussion of how some Gullahs were forced to leave Sapelo Island after the Civil War or got land on the Sea Islands, see McFeely (1994); and Barnes and Steen (2012a, 2012b).

11. One year after Crum's book appeared, Herskovits (1941b), a White scholar, released his landmark study of Africanisms among Black people in the USA. He looked at Gullah and other aspects of Black life and culture. Herskovits credited Lorenzo Dow Turner with being an indefatigable researcher and that “he alone has a background of firsthand study of African tongues, which makes it possible for him to discern survivals that would be incomprehensible to those without such training” (p. 276). In terms of Turner's position on Gullah, Herskovits made

it clear that he sided with him rather than the position of Ambrose Gonzales, George Krapp, H. L. Mencken, Reed Smith, Guy Johnson, and that ilk. Eventually, Herskovits was joined in his support of Turner's position by other White scholars like J.L. Dilliard (1972), P.H. Wood (1974), and Hancock (1980). Both Dilliard and Hancock have been able to document Gullah among Black Seminoles in Oklahoma, Texas, and Mexico.

12. For more information about the Creek Confederacy and what one writer has termed the Muskogean linguistic family, see Hodge (1907) as well as Henshaw and Mooney (1907).

13. Moore-Willson (1910) has informed us that, in the language of the Seminole Nation, "Estalustee" was used to refer to the Black race, "Estachatee" was used to refer to the American Indian race, and "Estahadkee" was used to refer to the White race (p. 187).

14. According to Owen (1904), one or more clans among the Musquakie Indians of the Midwest used the term "Geechee Manito-ah" to refer to a major deity. She also pointed out that the Musquakie Indians used war-chiefs in battle and the succession of the royal chief went to a nephew and not his son. It should be noted that the Seminole Nation used war-chiefs in battle and the succession of the royal chief went to a nephew and not his son. Mooney and Thomas (1907) have informed us that the Musquakie was part of the better-known Foxes Indian tribe and vice versa. In fact, Mooney and Thomas have written the following about the tribe: "An Algonquian tribe, so named, according to Fox tradition recorded by Dr. William Jones, because once while some Wagohug, members of the Fox clan, were hunting, they met the French, who asked who they were; the Indians gave the name of their clan, and ever since the whole tribe has been known by the name of the Fox clan. Their own name for themselves, according to the same authority, is Meshkwakihug, 'red-earth people,' because of the kind of earth from which they are supposed to have been created. They were known to the Chippewa and other Algonquian tribes as Utugamig, 'people of the other shore'" (p. 472). Parker (1913) is another person who has observed some American Indians using the term Geechee Manito-ah to refer to a major deity in the form of the "Great Spirit" (p. 151). However, Parker has provided a slightly different spelling which is "Gitche-manito" (p. 151).

15. Shortly after John Bennett and Ambrose Gonzales issued their reports, Puckett (1926), a White sociologist with an etic view, wrote a book and stated that, "The term 'Gullah' is thought to be a corruption of 'Angola'" (p. 16). He also said that, "The African term Makara or Mbakara, in the sense of white man, is closely related to the Negro "buckra man" (poor white) (p. 15). Puckett's book focused on folklore and was originally released in 1925 as his dissertation research for his Ph.D. in sociology.

16. Some of the scholars and researchers who have emphasized the importance of Black people remembering phenomena and events as a group, include Clarke (1986?); Howard (2002); A.C. Bailey (2003); St. Clair (2007); Abaka (2012); Manigault-Bryant (2014); McFeely (2014); Bruyneel (2014); Cooper (2017); Ricciardelli, Miller, Gilmore, and Ofunniyin (2017); and Aubrey (2018). They have all stressed the importance of Black people remembering phenomena and events as a group. Clarke, in his speech, discussed "historical memory." In her book, Howard talked about "social memory" (p. xvii). A.C. Bailey, in her book, mentioned: "public memory," "rememory," and "historical memory" (pp. 8, 162, 217, 229). In his book, St. Clair

discussed “site of memory” and “re-memory” (pp. 201, 264). Abaka, in his book, talked about “historical memory” and “sites of memory” (pp. ix, 404). In her book, Manigault-Bryant mentioned what she called “lived memory” and “living memory” (pp. 16-17). McFeely, in his book, discussed “remembered memories” (p. 48). In his article, Bruyneel talked “collective memory” (pp. 82, 84). In her book, Cooper talked about “misremembered” (p. 1). In their poster, Ricciardelli et al. discussed “cultural memory.” Aubrey, in her book, mentioned: “rememory,” “collective memory,” “historical memory,” and “remembrance” (pp. 2, 7, 14, 16-17).

17. This definition of social groups also draws on Cooley (1909); Park and Burgess (1921); Lewin (1951); Harrison (2002c); and Davis (2015).

18. For more information about “A Map of the County of Savannah,” see De Vorsey (1989); Cumming and De Vorsey (1998); Columbus State University Archives (2019); and Hargrett Rare Book & Manuscript Library (2019). According to De Vorsey, the map was first published in a tract by Samuel Urlsperger in 1735 and again in 1740. De Vorsey has theorized that the map was engraved by Tobias Conrad Lotter.

19. Flanders (1933) and B. Wood (1984) have informed us that White slaveholders brought a few enslaved Black people into Georgia from South Carolina to help build the Savannah settlement in 1733. After the governing officials approved slavery in Georgia effective January 1, 1751, the White slaveholders quickly developed a critical mass of Black people. As Flanders has noted, the 1760 population of Georgia consisted of 3,000 Black people and 6,000 White people; the 1766 population of Georgia consisted of 8,000 Black people and 10,000 White people; the 1773 population of Georgia consisted of 15,000 Black people and 18,000 White people; and the 1790 population of Georgia consisted of 29,662 Black people and 52,886 White people. Flanders has also noted that 3 of Georgia’s 11 counties were predominately Black in 1790 and 13 of Georgia’s 45 counties were predominately Black in 1820. Whereas Chatham, Liberty, and Glynn were predominately Black in 1790, the predominately Black counties in 1820 were Columbia, Richmond, Burke, Chatham, Liberty, McIntosh, Glynn, Camden, Oglethorpe, Greene, Wilkes, Baldwin, and Hancock. The data indicate that the coastal were more likely to be predominately Black than the other counties.

20. In many cases, Black families have refrained from sharing certain information with their younger kinfolk out of fear that White people would get the information too and become infuriated. For example, Leonard Jeffries, a retired Black professor from the City College of New York, has informed me that his grandfather, Jessie Jeffries, was lynched during 1917 in Georgia (personal communication, October 27, 2018). However, the immediate family of Leonard Jeffries never told him about the lynching and did not learn about it until the late 1970s. He had always been told that Jessie Jeffries died after he accidentally fell from a horse. Leonard Jeffries did not find out about the lynching until a member of his extended family mentioned it to him in 1977. At the time, Leonard Jeffries was about 41 years old and working as a consultant with Alex Haley on the film series *Roots*. A lot of White people in southeast Georgia lost loved ones during the Seminole Wars and the Civil War. Again, Black families have often refrained from sharing certain information with their younger kinfolk out of fear that White people would get the information too and become infuriated. The Black families are very aware that the

infuriation can lead to brutal retaliation. Cornelia Walker Bailey reported that some White people in Georgia's McIntosh, County were still mad at local Black people because Black soldiers in the Union Army attacked and destroyed Darien, Georgia on June 11, 1863 (Bailey & Bledsoe, 2000).

21. For another example of a researcher using a hypothesis and theory concerning a matter dealing with language, see Hancock (1986). Hancock has identified his use of a "domestic hypothesis" related to what he termed Atlantic Anglophone Creole origins (p. 71). In terms of his hypothesis and theory, Hancock explained that, "The present study proposes an alternative explanation—what I refer to as the *componential* approach to creole genesis—and discusses it in the matrix of my domestic hypothesis, dealing specifically with the anglophone Atlantic creoles and relying upon historical and linguistic evidence available to us" (p. 71). As Baird and Twining (1991) have pointed out, the linguist Salikoko S. Mufwene presented a paper titled "The Linguistic Significance of African Proper Names in Gullah" at the Ninth Annual Language in South Carolina Symposium. In that paper, Mufwene mentioned "the linguistic Afrogenetic hypothesis" (Quoted in Baird & Twining, 1991, p. 41). See Mufwene (1993) for a compilation of essays by various authors pertaining to Africanisms in Black languages found in the USA.

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Figure 1

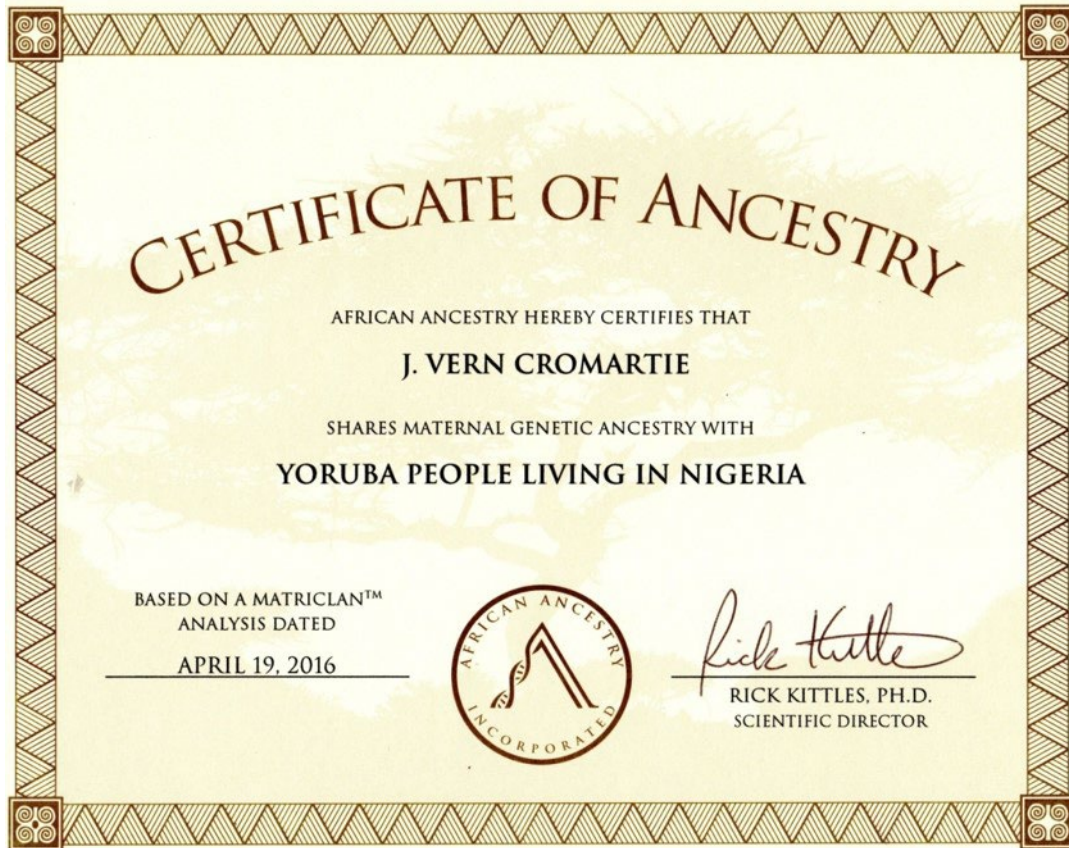
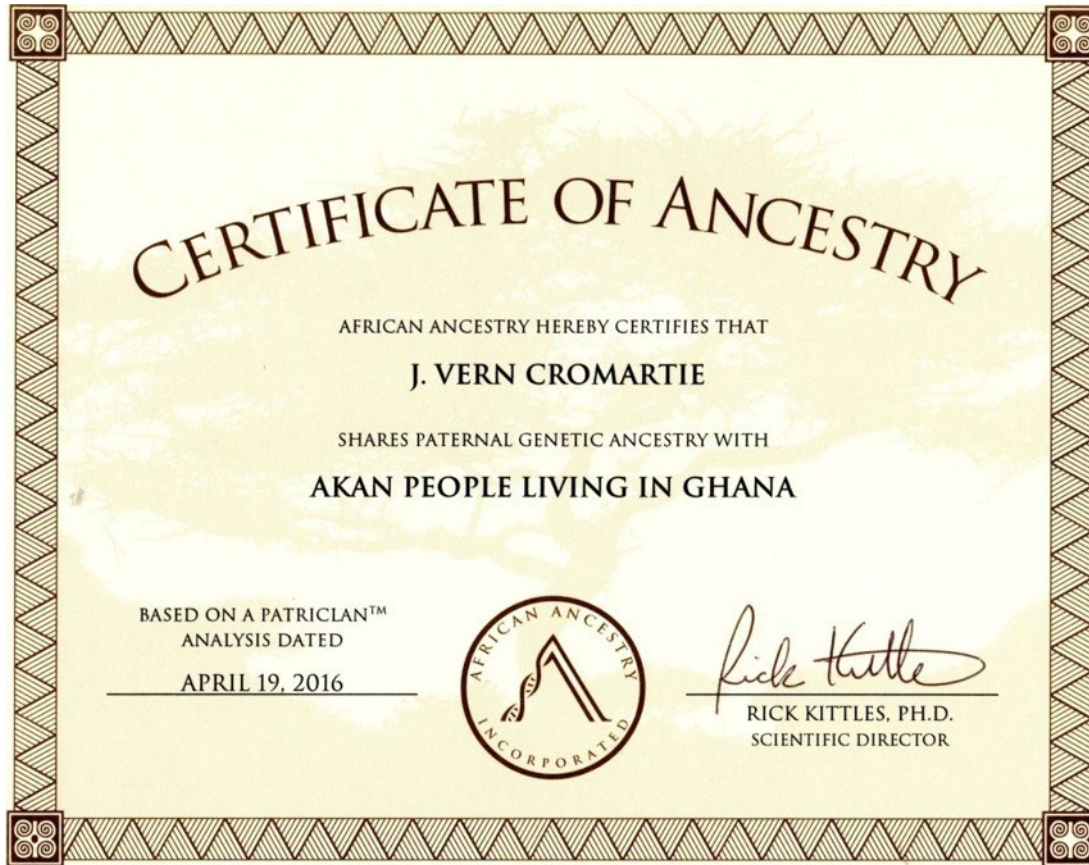


Figure 2



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Geechees and Other Gullahs: A Study in Race and Ethnicity

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Abstract

This paper presents a discussion of race and ethnicity in the United States of America (USA) with special reference to the Geechees and other Gullahs. Specifically, this paper defines the terms race, ethnicity, Geechee, Gullah, Maroon, outlyer, social group, Black people, partisan, and Seminole Nation; addresses the historical development and roles of Gullah-speaking Geechee Maroons as partisans of the Seminole Nation during the three Seminole Wars against the USA; addresses implications of the terms Geechee and Gullah for Black culture in the USA; and presents conclusions based on existing evidence.

Introduction

In 1950, 1951, 1964, and 1967, the United Nations Educational, Scientific and Cultural Organization (hereafter UNESCO) brought together several groups of experts from various colleges and universities around the world to prepare statements on race. According to UNESCO (1969), the purpose of the statements was “to make known the scientific facts about race and to combat racial prejudice” (p. iv). The first statement on race, which was mainly drafted by sociologists in Paris, France during July 1950, related that:

A race, from the biological standpoint, may therefore be defined as one of the group of populations constituting the species homo sapiens. . . . In short, the term ‘race’ designates a group or population characterized by some concentrations, relative as to frequency and distribution, of hereditary particles (genes) or physical characters, which appear, fluctuate, and often disappear in the course of time by reason of geographic and/or cultural isolation. (pp. 30-31)

The first statement also related that:

Human races can be and have been differently classified by different anthropologists, but at the present time most anthropologists agree on classifying the greater part of the present-day mankind into three major divisions as follows: (a) the Mongoloid division; (b) the Negroid division; and (c) the Caucasoid division. The

biological processes which the classifier has here embalmed, as it were, are dynamic, not static. These divisions were not the same in the past as they are at present, and there is every reason to believe that they will change in the future. (pp. 31-32)

In addition, the first statement noted that there are “[m]any sub-groups or ethnic groups within these divisions” (p. 32).

UNESCO (1969) reported that the second statement on race was drafted in Paris, France during June 1951. That second statement posed that:

There is no evidence for the existence of so-called ‘pure races. . . . In regard to race mixture, the evidence points to the fact that human hybridization has been going on for an indefinite but considerable time. Indeed, one of the processes of race formation and race extinction or absorption is by means of hybridization between races. (p. 42)

The second statement recognized that the race concept had real consequences although it was maintained by many social scientists that social conditions led to the absence of no pure races. It also posed that scientific evidence shows that all people belong to the same species and that “no biological justification exists for prohibiting intermarriage between persons of different races” (p, 42). Additionally, the second statement suggests that if people belong to different species, they would not be able to reproduce with each other. It took the opposite view and postulated that people can reproduce because they belong to the same species.

In the case of the United States of America (USA), many sociologists and other social scientists hold the view that race is a social construction.¹ Likewise, many sociologists and other social scientists acknowledge that definitions of the term race can vary from one society to another society. Nevertheless, the legacy of the one drop rule as a social force is still in strong effect in the USA. The de facto rule is that one drop of Black blood in a person’s body makes one Black in the USA.

The legacy of the one drop rule has tended to overshadow the fact that there is ethnic and cultural diversity within the Black population of the USA. That ethnic and cultural diversity reflect a social condition known as ethnicity. As used in this paper, the term ethnicity is synonymous with term ethnic group and it refers to an aspect of a group of people who share a common historical and cultural heritage and sense of group identity and belongingness. Thus, ethnicity can be based on culture, nationality, language, tribal affiliation, religion, etc. As is the case with race, ethnicity is a social construction because its definition can vary from one society to another. Examples of ethnic groups are Latino people in the USA; Jewish people in the USA; Gullah people in the USA; and Geechee people in the USA (Harrison, 2002b; Humes, Jones, & Ramirez, 2011; Cromartie, 2020).

In the case of the USA, ethnic groups in the Black population have cultural dissimilarities as well as similarities. For example, Geechees and other Gullahs living in Georgia, South Carolina, Florida, and North Carolina along the southeastern seaboard have cultural dissimilarities as well as cultural similarities to Creoles living in Louisiana along the southern most part of the Mississippi River.² The cultural similarities include some of the Africanisms retained from their African roots. The cultural dissimilarities are a product of the separate historical development in the USA of those strata of people. Nevertheless, the interactions between Geechees and other Gullahs with Creoles led to the development of jazz as an artform (Cromartie, 2020a, 2020b).³

This paper will present a discussion of race and ethnicity in the USA with special

reference to the Geechees and other Gullahs. Specifically, this paper will define the terms Geechee, Gullah, social group, Maroon, Outlyer, Black people, Seminole Nation, and partisan. It will also address the historical development and roles of Gullah-speaking Geechee Maroons as partisans of the Seminole Nation during the three Seminole Wars against the USA. In addition, this paper will address implications of the terms Geechee and Gullah for Black culture in the USA. The research methodology was a mixed-methods approach composed of the case study method and the observation method. Research techniques included the content analysis of primary and secondary source documents, and participant observation.

Definitions of the Terms Geechee, Gullah, Social Group, Maroon, Outlyer, Black People, Seminole Nation, and Partisan

As used in this paper, term Gullah refers to a social group of antebellum people of Black African descent (and their descendants) who experienced chattel slavery in the southeastern part of the USA, as well as their lingua franca. The term Gullah was used in the USA before the Civil War to refer to enslaved Africans who were born on the African continent or elsewhere in the Diaspora and the language they brought with them to this country.⁴ The term Geechee refers to a social group of antebellum Gullahs (and their descendants) who not only established Maroon communities in southern Georgia and northern Florida after running away from slavery in the 18th and 19th centuries, but became part of the Seminole Nation as well. Moreover, many Gullahs such as the Geechees managed to escape from slavery and became Maroons before the Emancipation Proclamation took effect. The terms Geechee and Gullah came to be used interchangeably in the 20th century. However, this paper shows that Geechee and Gullah have not always been thought of as synonymous (Cromartie, 2011a, 2011b, 2013a, 2013b, 2013c, 2020a, 2020b).⁵

The term social group refers to a set of two or more individuals who share a sense of common identity and belonging and who interact on a regular basis. Members of a social group are often recruited according to specific criteria of membership and are bound together by a set of membership rights and mutual obligations. Examples of social groups are Geechees in Georgia; Gullahs in South Carolina; Cherokees in Oklahoma; Amish in Pennsylvania; Crips in Los Angeles; and Latin Kings in New York (Du Bois, 1898; Small, 1905; Cooley, 1909; Park & Burgess, 1921; Lewin, 1951; Jary & Jary, 2000; Harrison, 2002c; Davis, 2015).⁶

As used in this paper, the term Maroon refers to antebellum Black men, women, and children who ran away from slavery singly, in pairs, and in larger groups, and organized themselves into communities on the order of the Palmares in Brazil, the Windward and Leeward Maroons of Jamaica, and the Djuka and Saramakas of the Guianas. To survive, Maroons developed independent crop-raising communities. In addition, Maroons offered havens to other Black people who had escaped from slavery. There were times that Maroons engaged in attacks upon plantations, townships, and cities. There were also times that Maroons engaged in supplying the nucleus of leadership for planned uprisings on the plantation itself (Morse, 1822; Cohen, 1836; Giddings, 1858).⁷

Although many fugitive slaves escaped with the intention of “outlying” on a temporary basis, others ran away and intended to stay free on a permanent basis. For the purpose of this paper, fugitive enslaved Black people who intended to stay out temporarily are referred to as “outlyers.”⁸ Fugitive enslaved who joined Maroon communities are called Maroons. Between 1672 and 1864, at least 50 Maroon communities existed in the USA. They were located mainly

in the swamps, forests, and mountains of South Carolina, North Carolina, Virginia, Louisiana, Mississippi, Alabama, Florida, and Georgia (e.g., the Okefenokee Swamp region) (Aptheker, 1939, 1943/1974; Matschat, 1938; Porter, 1964; Bergman & Bergman, 1969; Foner, 1975; Blassingame, 1972/1979; Franklin & Moss, 1988; Davis & Donaldson, 1975).⁹

The term Black people refers to people of Black African descent who can be found in the USA as well as other parts of the Diaspora and Africa. In the case of the USA, Black people are a racial group with many different ethnic groups, including Geechees and other Gullahs, Creoles, and Cajuns. The Black racial group also includes Black people with roots Central America and South America (e.g., Mexico, Belize, Nicaragua, Panama, Brazil, etc.) In addition, the Black racial group includes Black people from the Caribbean (e.g., Jamaica, Trinidad and Tobago, Haiti, Dominican Republic, Cuba, Puerto Rico, St. Thomas, Grenada, etc.) (Rastogi, Johnson, Hoeffel, & Drewery, 2010; Humes, Jones, & Ramirez, 2011).

As used in this paper, the term Seminole Nation refers to a political confederation established during the 18th century by American Indians known variously as Creeks, Muscogeese, Miccosukees, and Ogeechee. The Seminole Nation included a critical mass of Gullah-speaking Maroons from South Carolina and Georgia by 1816. It also included both Black Chiefs and American Indian Chiefs. The American Indians joined together with the Gullah-speaking Maroons from Georgia and South Carolina to fight three wars against the USA, namely the First Seminole War from 1816 to 1818, the Second Seminole War from 1835 to 1842, and the Third Seminole War from 1855 to 1858 (J.L. Williams, 1837; Sprague, 1848; Porter, 1971, 1996/2013; L. Bennett, 1962/1993; Du Bois, 1985; Dixon, 2014).

Origins of the Gullah-Speaking Geechee Maroon Partisans of the Seminole Nation

Thus far shown, the first Black people were introduced to servitude in British colonial settlements within the present limits of the USA in 1619.¹⁰ The flow of African natives into most parts of the USA continued from 1619 during the colonial era until 1808 when a post-Revolutionary War law took effect and prohibited the importation of Blacks (Africans or people of African descent) for the purpose of enslavement (R. Peters, 1845; Donnan, 1935).¹¹ Shortly after the end of the Revolutionary War, the state of Georgia passed a law in 1798 prohibiting the importation of Black slaves (Marbury & Crawford, 1802). However, neither the 1798 law nor the 1808 law sufficed to stop the International slave trade. Afterwards, along Georgia's coastline slave trading Whites notoriously resorted to smuggling "Black cargoes" directly from Africa until the Emancipation Proclamation took effect in the mid-1860s.¹² Many of these enslaved Africans had been kidnapped into captivity from their homes along West Africa's Gulf of Guinea. Subsequently, these Africans were dispatched for forced labor in the area of the eastern seaboard stretching from South Carolina, Georgia, and northeastern Florida up through North Carolina, Virginia, District of Columbia and some areas (Franklin & Moss, 1988; L. Bennett, 1962/1993; Mannix & Cowley, 1962).

The Africans were known by ethnic or tribal names such as the Coromantee country born, Gola (aka Golla, Galla, Gula, & Gulla), Fallah country born, Ibo (aka Igbo, Ebo, Eboe, Aboe, & Calabar), Ibibio, Bambara, Mbundu, Mandinka (aka Mindinga), Mende, Mandingo, Wolof (aka Jolof), Yoruba, and others.¹³ In advertisements of enslaved Africans who were runaways from bondage, they were sometimes called Angola Negro, Angola born, Angola country born, Bama born, Bermuda born, Gambia born, Guiney country born, Mandingo born,

etc. They came to speak a lingua franca called Gullah, which was essentially a mixture of pidgin English, African languages, and both Spanish and Indian words. The lingua franca went through a process from a pidgin language to a Creole language. The central part of the coastal strip that they inhabited consisted mainly of savannah lowlands, which came to be called the “Gullah area” (Turner, 1949; Herskovits, 1941/1958; P.H. Wood, 1974; Blassingame, 1972/1979; Vass, 1979; Windley, 1983).¹⁴

Under the leadership of James Edward Oglethorpe in 1733, White colonizers established a permanent settlement in the present-day Savannah, Georgia and Ogeechee River area, which was inhabited by a multivalent clan branch of the Creek Indians. These clans were known variously as the Muskogee, Miccosukee, Yuchi (aka Uchi, Uche, Uchee, Euchee, Hughchee, and Hog Logee), Tallassee, Tamali, Apalachee, Coweta (aka Caweta & Kawita), Oconee, Shawnee, Savannah (aka Savanna), Yamacraw, Yamasee (aka Yamase and Yemassee), and Guale, as well as Ogeechee (aka Ogeeche, Ogechee, and Howgechu). As had certain West Africans, certain Indians greeted the Europeans with open arms, including a Creek Indian chief known as Tomochichi. The actions of Tomochichi helped lead to the downfall in Georgia of these Hitchiti-Muskogean linguistic stock speaking people (whose words have a certain phonetic sound and often end in *ee* like Okefenokee, Oconee, Ocmulgee, Ohoopie, Willacoochee, Tallahassee, and Ogeechee). Shortly after the actions of Tomochichi, the White colonizers implemented their widely used strategy of provoking the clans to attack one another as well as introduced epidemic diseases like smallpox to them (Oglethorpe, 1733a, 1733b; Bartram, 1791/1958; Potter, 1836; Catlin, 1842; Sprague, 1848; Hawkins, 1848; White, 1855; Gatschat, 1884, 1888; Hodge, 1907a, 1907b; Moore-Willson, 1910; Swanton, 1922, 1946; Krogman, 1934; McReynolds, 1957; Porter, 1964; Brandon, 1965; Rodney, 1967; Irvine, 1974; Nash, 1982; J. Wright, 1986; Coleman, 1991).

In less than 17 years, a clan of this group of Indians called the Ogeechee was almost totally wiped out. In his book entitled *Handbook of American Indians North of Mexico*, Frederick Hodge (1907b) included the following information:

Ogeechee. A town or subtribe of the Yuchi, formerly situated at some point on lower Ogeechee r., Ga. The Creeks and other tribes made war on them, and according to Bartram they were finally exterminated by the Creeks and Carolina settlers (?) on Amelia id., Fla., where they had taken refuge after having been driven from the mainland. (p. 109)

Hodge (1907b) noted that the Ogeechee Indian information was supplied by J. Mooney. The latter was one the many contributors to the *Handbook of American Indians North of Mexico*.

In the 1700s, William Bartram (1791/1958), made a visit to Georgia, Florida, and South Carolina and wrote a report about his observations of various groups of Indians, including the Ogeechee. Bartram has stated the following in his report:

And they [Creeks] say, also, that about this period the English were establishing the colony of Carolina, and the Creeks, understanding that they were a powerful, warlike people, sent deputies to Charleston, their capital, offering them their friendship and alliance, which was accepted, and, in consequence thereof, a treaty took place between them, which has remained inviolable to this day: they never ceased war against the numerous and potent bands of Indians, who then surrounded and cramped the

English plantations, as the Savannas, Ogeechees, Wapoos, Santees, Yamasees, Utinas, Icosans, Paticas, and others, until they had extirpated them. The Yamasees and their adherents sheltering themselves under the power and protection of the Spaniards of East Florida, they pursued them to the very gates of St. Augustine, and the Spaniards refusing to deliver them up, these faithful intrepid allies had the courage to declare war against them, and incessantly persecuted them, until they entirely broke up and ruined their settlements, driving them before them, till at length they were obliged to retire within the walls of St. Augustine and a few inferior fortified posts on the sea coast. (p. 35)

It was made clear by Bartram that there was a group of Indians in Georgia known as the Ogeechee. He also made it clear that White colonizers invaded their traditional homeland in Georgia.

Some 200 years after Bartram traversed in Georgia, Yale University Press published what it called the Naturalist's Edition of *The Travels of William Bartram*. In the Commentary section of the Naturalist's Edition, Francis Harper (1958) included the following information:

. . . the Ogeechee tribe was a band of Yuchi and this may have been the one which afterwards removed to Florida and settled at Spring Garden by Woodruff Lake. Possibly these Indians stopped upon the Georgia coast long enough to leave a memory of themselves there though could hardly have remained for a sufficient length of time to erect mounds of any magnitude. However, the Ogeechee mentioned here may have been Indians from the mouth of Ogeechee River belonging to the Guale tribe which later settled in Florida north of St. Augustine. The Quaker Dickenson visited their towns in 1699. As to their "destruction" we may say that myth makers have destroyed more tribes than America ever contained. (p. 350)

Harper (1958) noted that the Ogeechee Indian information contained in her commentary was supplied by J.R.S. The initials J.R.S. were probably those of John R. Swanton.

Around 1750, a Creek Indian chief, who has been called Secoffee as well as "Cowkeeper," led the remnants of what was left of the Ogeechee Indians into the present-day southeast Georgia and northeast Florida areas. Some scholars and writers say it was Secoffee who led that important trek. Other scholars and writers say it was Cowkeeper who led that important trek. There are even some scholars and writers who say Secoffee and Cowkeeper were the same person. Nevertheless, the Ogeechee Indians, as well as other contingents of southeastern Indians and Gullahs who had escaped primarily from slavery in Georgia, combined to form what evolved into the Seminole Nation (Potter, 1836; Sprague, 1848; Giddings, 1858; McCall, 1868; Florida Writers' Project, 1939; Gatschet, 1884, 1888).¹⁵

During the Second Seminole War, Thomas S. Jesup was a Major General in the U.S. Army. He was the officer in charge of the Headquarters of the Army of the South and stationed in Florida at Fort Armstrong near Dade's battleground. Jesup wrote a series of letters to other government officials wherein he mentioned the presence of Ogeechee Indians as partisans of the Seminole Nation and the presence of Maroons as partisans of the Seminole Nation. In a letter dated January 19, 1837 to Secretary of War Benjamin F. Butler, Jesup (1861b) reported that:

I detached Lieutenant Colonel Foster, from Fort Clinch, with five hundred regular troops, Georgia volunteers, and Indian warriors, against the Tallahassee and Ogeechee Indians,

who had fled from the Withlacoochee, and have established themselves in the swamps south of the mouth of the Withlacoochee. (p. 826).

According to Jesup, the Ogeechee Indians were operating in some swamps to the south of the Withlacoochee River as partisans of the Seminole Nation. Jesup noted that the Ogeechee Indians had unified with the Tallahassee Indians as partisans of the Seminole Nation.

On January 20, 1837, Jesup (1861c) wrote a letter to Brigadier General R. Jones, an Adjutant General about his military forces going into the swamps to pursue of the Seminole Nation under the leadership of Osceola. He wrote:

All the swamps and hammocks as far down as General Gaines's battleground have been examined, with no other results than the breaking up of a negro settlement in the Pano Saufkee swamp, and the capture of fifty-two negroes and three Indians.

Powell was in the swamp with the negroes, but escaped, (the prisoners say,) attended by only three warriors. The Indians are represented as flying in small parties from swamp to swamp, almost naked. A part of them were represented by a prisoner to have taken refuge in a large swamp south of the mouth of the Withlacoochee. I have detached Lieutenant Colonel Foster to attack or capture them. (p. 826)

Powell was one of the names used by White military personnel to refer to Osceola. The report by Jesup acknowledged that Osceola was fighting alongside Maroons as comrades-in-arms.

Jesup wrote two important letters about the Second Seminole War on January 21, 1837. One was sent by Jesup (1861d) to Secretary of War Benjamin F. Butler and he reported that: "Lieutenant Colonel Foster is in pursuit of the Tallahasseees and Ogechees, south of the Withlacoochee . . ." (p. 827). Another one was sent by Jesup (1861e) on that same day to Brigadier General R. Jones, an Adjutant General in Washington, DC. He said:

An Indian runner has this moment come in from Lieutenant Colonel Foster's command with intelligence of the troops having overtaken a party of hostile Indians and negroes, of which they killed two and captured eleven Indians and nine negroes; the remainder escaped. (p. 827)

The letter of Jesup to Jones indicates that the Ogeechee Indians were fighting side by side with the Maroons against the troops under the command of Jesup.

The fact that Maroons were fighting as partisans of the Seminole Nation alongside Indians against got made even made clearer in a letter that Major General Jesup (1861f) sent to Secretary of War Butler dated February 7, 1837. In that letter, Jesup wrote:

The expedition has been so far successful that we came up with the enemy on the 27th ultimo, and the advance, under Colonel Henderson, attacked and beat them near the Hacheeluskee. This led to a conference with the hostile chiefs, Jumper, Alligator, and Abraham, who have agreed to meet me, with the other chiefs of the nation, on the 18th instant, to discuss the terms of a peace, or rather to inform me whether they will accept the terms which I have offered.

I have required a strict observance of the terms of the treaty, and have demanded

immediate emigration as an indispensable condition.

There would be no difficulty in making peace and giving immediate security to the country if it were not for that condition; but the chiefs say that their people cannot live in the country assigned to them in consequence of the coldness of the climate. They are here below the 28th degree north of latitude, and will be above the 34th. The negroes, too, who rule the Indians, are all averse to removing to so cold a climate. (p. 827)

Jesup identified Abraham the Maroon fighting alongside the Indian chiefs Jumper and Alligator. He said that the Black Maroons rule the Indians.

Social conditions in Georgia had resulted in the migration of both Muskogee Indians and Gullah-speaking Black Maroons migrating southward to Florida. About a year prior to the action of Secoffee or Cowkeeper, the trustees of Georgia approved an initiative in 1749 to request that the House of Commons permit the slavery of Black people. Subsequently, the House of Commons approved that request to permit the slavery of Black people effective January 1, 1751. After the official implementation of slavery in Georgia, many Gullahs in the present-day Savannah, Augusta, and Brunswick, Georgia areas fled from slavery singly, in pairs, and in larger groups. Other Gullahs from the Albany, Georgia area and elsewhere later joined them to live as Maroons in locations within, around, and below the Okefenokee Swamp—which extends from southeast Georgia to northeast Florida. Two of the places Gullahs headed to were Negro Fort located on the Apalachicola River and Pilacklikaha (aka Pelacklekaha and Pulacklicaha) located near the Whitlacochee River. Before 1750, some Gullahs headed to Fort Mose located near on the Atlantic Ocean near St. Augustine, Florida (Martyn, 1741/1905; Simmons, 1822/1973; J.L. Williams, 1837; “Seminole War,” 1837; Sprague, 1848; Oglethorpe, 1873; I. Wright, 1924; Hurston, 1927; Pennington, 1930; Davis, 1931a, 1931b; Hoyt, 1947; Bell, 1956; Gadsden, 1956; Call, 1962; Poinsett, 1962; Reid, 1962; Laurens, 1968).¹⁶

In its June 15, 1837 issue, as Porter (1943b) has pointed out, the *Army and Navy Chronicle* published the following extract of a letter received by a White man living in Savannah from another White man writing from Camden County, Georgia:

You will be surprised to hear that I have not long returned from an excursion after Indians. Three of them were captured about two miles from my house, and it is believed that some hundreds are in the Oakafanoke [sic]. The Indians were conducted to this neighborhood by a runaway negro from this section. The negro is well known to me, and a great villain he is--he is fled to the Oakafanoke [sic], or in that direction, and fears are entertained that he may conduct, the next time, a much greater number. (“Extract,” 1837, p. 379)¹⁷

The Army and Navy report that White colonizers were suffering from trouble caused in the Okefenokee Swamp region by refugee Creek Indians and Gullah-speaking Maroons who had escaped from Georgia plantations.

The activity of the unified body of refugee Creek Indians and Gullah-speaking Maroons continued for years in the Okefenokee Swamp region. In an 1839 report to his superior officers, General Thomas S. Jesup stated that:

. . . the Creek Indians have all left the Okefenokee & gone south, there were seven runaway negroes from Georgia among them, well armed & plenty of ammunition. . . . the

negroes also have left & on their way South burned the houses in the vicinity. (Quoted in Porter, 1943b, p. 410)

As was the case with the *Army and Navy Chronicle*, the report by Jesup acknowledged that the activity of the unified body of refugee Creek Indians and Gullah-speaking Maroons continued for years in the Okefenokee Swamp region. Other people have also noted the presence of military forces connected to Seminole Nation operating in the Okefenokee Swamp. Motte (1953), an Army surgeon, said that he observed during December 1836 “the very tracks of the hostile Indians” headed from Alabama to Florida via the Okefenokee Swamp (p. 71). Regarding Coacoochee, Sunderman (1853) stated that, “In 1838 he was operating in central and northern Florida and out of the Okefenokee Swamp” (p. 294). Additionally, Cohen (1836) related that military forces of the Seminole Nation were still active in the Okefenokee Swamp in 1842.

Whereas the Creeks Indians, like their kinsmen in Florida, were trying to escape being sent west, the Gullah-speaking Maroons were trying to escape enslavement. As mentioned above, various groups of Indians, especially Creeks from Georgia, united with the Gullah-speaking Maroons to form the Seminole Nation. Instead of fleeing north like John “Fed” Brown, James Madison, William and Ellen Craft, Frederick Douglass, and others, many Gullahs joined forces with the Indians to maintain armed struggle against slaveholding White people. They carried on guerrilla warfare and encouraged other Blacks to run away from slavery and become Maroons. The migration of Gullahs from Georgia, as well as South Carolina, to various points south and elsewhere lasted from the 1700s up until the Emancipation Proclamation took effect in the mid-1860s (Higginson, 1869/1984; Montiano, 1909; Percival, 1906; Stephens, 1906; “Extract,” 1837; T.F. Davis, 1930; Laurens, 1968; Blassingame, 1977; Windley, 1983).¹⁸

Further, the Indians of the Seminole Nation called all Gullahs “Estalustee” (aka Estelusti).¹⁹ However, to distinguish the Estalustee who fought alongside them for over one hundred years from the other Gullahs, their Indian comrade-in-arms probably gave them the war-name “Geechees” in honor of the Ogeechee clan whose numbers were decimated by the treachery of the European colonists.²⁰ The Gullah-speaking Geechee Maroons participated as partisans of the Seminole Nation in all three Seminole Wars. In addition, the three Seminole Wars, as many scholars refer to them and date from 1816-1818, 1835-1842, and 1855-1858, cost the federal government millions of dollars and the lives of scores of troops. The Second Seminole War alone, cost an estimated \$20,000,000-\$40,000,000 and the lives of approximately 1,500 members of the armed forces of the USA, including marines and sailors as well as soldiers. Throughout this long and costly war, Geechees played significant and often decisive roles not only as warriors but as advisors, spies, and interpreters as well (Cohen, 1836; Marryat, 1839; Giddings, 1858).²¹

Some Geechees entered the battlefields as chiefs or captains of their own warriors, while others served as lieutenants and warriors under Indian hereditary chiefs and war leaders. Names of male and female Geechee members of the Seminole Nation during its second war with the USA included Abraham (aka Abram, Abra'm, Yobly, The Prophet, & Souanaffe Tustenukke), Abia, August, Toney Barnett, Polly Barnett, Beckey Barnett, Grace Barnett, Lydia Barnett, Martinas Barnett, Mary Ann Barnett, Bayal, Betty, Black, Buck, Long Bob, David Bowlegs, Jack Bowlegs, Sam Bowlegs, Ben Bruno, John Caesar, Catherine, Caty, John Cavallo (aka Gopher John, John Horse, John Coheia, & Cowaya), Charles (aka Tenebo), Cooter, Cornelia, Cosar, Cudjo, Cuffee, Cuffy, Dambo, Diana, Dinah, Doc, Fay, Andrew Gay (aka Andrew Gue), Hagar, Hard Times, Harry, Ishmael, Israel, Jenny, Jim, Juba, Juby, Juda, July, Linda, Lucy,

Lybby, March, Mary, Matilda, Monday, Mundy, Louis Pacheco (aka Louis Fatio, Luis Pacheco, & Lewis), Peggy, Pompey, Prince, Queen, Rabbit (aka Friday), Renty, Sampson, Sandy, Scipio, Smart, Sophy, Sylvia, Tamar, Tamour, Tanneba, Taymour, Teena, Teenar, Tena, Tina, Thursday, Toby, Tunee, Wann (aka Whan, Juan, Inos, Ino, & Inoinophen), William, and Washington. During the latter part of the 1830s, Jesup (1861g) published a registry of Geechees his forces had captured and he included many of the names listed above as well as others.²²

In his registry of Geechees his forces had captured, Jesup (1861g) referred to Abraham as the “principal negro” (p. 852). Jesup further related that Abraham was “supposed to be friendly to the whites; said to be a good soldier and an intrepid leader; he is the most cunning and intelligent negro we have seen; he is married to the widow of the former chief of the nation” (p. 852). One year before Jesup completed his registry, the *Army and Navy Chronicle* published on June 15, 1837 the following extract of a letter received from a White officer fighting against the Seminole Nation:

We have a perfect Talleyrand of the Savage Court in Florida, in the person of a Seminole negro, called Abraham, who is sometimes dignified with the title of “Prophet.” He is the Prime Minister, and privy councillor of Micanopy; and has, through his master, who is somewhat imbecile, ruled all the councils and actions of the Indians in this region.

Abraham is a non-committal man, with a countenance which none can read, a person erect and active, and in stature over six feet. He was a principal agent in bringing about the peace, having been a commander of the negroes during the war, and an enemy by no means to be despised.

While we lay on the border of Lake To-hop-to-la-ga, and the Big Cypress Swamp, a negro, Ben, was captured by our horse, and, after detaining him for a day, he was sent out to bring in Abraham, who he said was desirous of peace, and was concealed in the neighborhood.

Abraham made his appearance, bearing a white flag on a small stick which he had cut in the woods, and walked up to the tent of Gen. Jesup with perfect dignity and composure.

He stuck the staff of his flag in the ground, made a salute or bow with his hand, without bending his body, and then waited for the advance of the General, with the most complete self-possession. He has since stated that he was expected to be hung, but concluded to die, if he must, like a man, but that he would make one effort to save his people. (Quoted in “Seminole War,” 1837, p. 378)

Thus, the record indicates that Abraham was a very intelligent and brave leader in the Seminole Nation with the status of a war chief. The record also indicates that Abraham had several basket names or nicknames including “The Prophet” as well as “Abram,” “Abra’m,” “Yobly,” and “Souanaffe Tustenukke. Abraham is listed as Abram in Jesup’s registry. During negotiation with White officers in the U.S. military, it was Abraham who often spoke on behalf of the Seminole Nation (J.L. Williams, 1837; Jesup, 1861g; Sprague, 1848; McCall, 1868; Porter, 1946b).

Shortly before the start of the Second Seminole War, George A. McCall (1868), a White officer in the U.S. Army, saw the Maroon village where Abraham lived known as Pelaklikaha. McCall reported his observations in a September 25, 1826 letter to his wife. He stated that:

On the third day we reached “Pelahlikaha,”—in English, “Many Ponds.” In the midst of these ponds, on a ridge of high “shell-hummock” land—once, when old ocean’s waves rolled over it—a vast bed of small shell-fish or mollusks which for centuries had probably been accumulating, there now flourishes one of the most prosperous negro towns in the Indian territory. We found these negroes in possession of large fields of the finest land, producing large crops of corn, beans, melons, pumpkins, and other esculent vegetables. They are chiefly runaway slaves from Georgia, who have put themselves under the protection of Micanopy, or some other chief, whom they call master; and to whom, for this consideration, they render a tribute of a one-third of the produce of the land, and one-third of the horses, cattle, and fowls they may raise. Otherwise they are free to go and come at pleasure, and in some cases are elevated to the position of equality with their masters. I saw, while riding along the borders of the ponds, fine rice growing; and in the village large corn-cribs well filled, while the houses were larger and more comfortable than those of the Indians themselves. The three principal men bear the distinguished names of July, August, and Abraham. We found these men to be shrewd, intelligent fellows, and to the highest degree obsequious. (p. 160)

McCall reported that he observed to be Abraham to be very intelligent and shrewd as a leader. He also found July and August to be very intelligent and shrewd as leaders. McCall said that the Maroons were chiefly runaway enslaved Black people from Georgia. Despite being in a swamp, Abraham and the other Geechees worked together with the Indian comrades-in-arms to transform the land into an independent crop-raising community.

In their accounts of Second Seminole War, three other White officers in the U.S. Army who also discussed Abraham were M.M. Cohen (1836), Woodburne Potter (1836), and John T. Sprague (1848). Cohen made the following statement about the Seminole leader:

Abram, or Yobly, as the Indians call him, is the chief Interpreter, and latterly succeeded Jumper as “sense carrier” to Miconope. This high chancellor and keeper of the king’s conscience, also heads about five hundred negroes, of whom he is legislator, judge, and executioner, through his influence with the Governor. Yobly ran away from the whites at Pensacola while a lad, and like many of his blacks, dreads peace which would restore them as property. He is forty-five years of age, his figure is large, his face broad and square, having the thick lips of a full blooded negro. He is plausible, pliant and deceitful; and, under an exterior of profound meekness, cloaks deep, dark, and bloody purposes. He has at once the crouch and the spring of the panther, and certain traits of his character like him to Cardinal De Retz. (p. 239)

Potter referred to “an influential black chief named Abraham” (p. 26). Sprague published a July 6, 1838 letter written by Thomas S. Jesup that referred to Abraham twice as a “negro chief” (pp. 1995-196). Additionally, Sprague published visual images of Abraham and another Black chief named John Horse, who was also known as John Cavallo and Gopher John.²³

Some of the Seminole Nation Indian hereditary and war leaders who Geechees fought under during the Second Seminole War included Alligator (aka Eufalo Mico, Halpatter, Halpatter Tustenugge, & Halpatah Hajo), Euchee Billy (aka Uchee Billy), Billy Bowlegs (aka Holata Micco, Halpatter-Micco, Billy Boleck, & Bolek), Coacoochee (aka Wildcat), Cooper (aka Osoochee, Osuchee, Osuche, & Osarchiee), Yaha Hajo (aka Mad Wolf), Hospetarke, Euchee Jack

(aka Uchee Jack), Sam Jones (aka Arpeika & Arpiuka), Jumper (aka Hoethle Ma-tee, Otee Emathla, Onselmatche), Micanopy (aka Mikonopi), Octiarche (aka Ochtiarche & Oktiarche), Osceola (aka Oseola, Aseola, Asi-Yahola, As-se-se-he-ho-lar & Powell), Otulke-Thloko (aka Otalke Thlocko & The Prophet), King Philip (aka Emathla), Tuskinia, and Yaholoochee (aka Cloud) (Cohen, 1836; J.L. Williams, 1837; Catlin, 1842; Sprague, 1848; Giddings, 1858; Du Bois, 1903; Hurston, 1942/1995; Mahon, 1967; Horan, 1972; Twyman, 1999).

Prominent White men assigned to state and federal military forces that Geechees fought against in Second Seminole War included future president Zachary Taylor and future Civil War hero William Tecumseh Sherman, as well as, Walker Keith Armistead, Braxton Bragg, Richard Keith Call, Thomas Childs, Duncan L. Clinch, M.M. Cohen, Francis L. Dade, Abraham Eustis, Charles Floyd, Upton S. Frazier (aka U.S. Frazer & U.S. Fraser), Edmund Pendleton Gaines, George W. Gardiner, William Selby Harney, Thomas Hilliard, Ethan Allen Hitchcock, James F. Izard, Thomas Sidney Jesup (aka Thomas Sydney Jesup), William Lindsay, John T. McLaughlin, Jacob Rhett Motte, Edward Ord, George Henry Preble, Winfield Scott, John T. Sprague, James Sweat, George H. Thomas, David E. Twiggs, and William Jenkins Worth (Cohen, 1836; Potter, 1836; Sprague, 1848; Giddings, 1858; McCall, 1868; Hitchcock, 1909; Motte, 1953; Mahon, 1967).

The White officers, who fought against the Geechees, made important observations of the fighting abilities of their brave enemies. At the outset of the Second Seminole War, the Geechees of the Seminole Nation were described as “bold, active, and armed” (Quoted in Porter, 1964, p. 432). In his history of the Second Seminole War, Captain John T. Sprague (1848) wrote the following: “The negroes, from the commencement of the Florida War, have, for their numbers, been the most formidable foe, more blood-thirsty, active, and revengeful, than the Indian” (p. 309). In reference to the Second Seminole War, General Thomas S. Jesup (1861a) wrote the following words in a December 9, 1836 letter to Benjamin F. Butler, the Acting Secretary of War: “this . . . is a negro, not an Indian war” (p. 821). General Andrew Jackson (1832) had written similar words in a May 5, 1818 letter to John C. Calhoun, Secretary of War when he referred to the First Seminole War as “his savage and negro war” (p. 702). Although no one, including participants such as Sprague and Jesup, have been able to discern exactly how many Geechees were with the Seminole Nation during the Second Seminole War, rather conservatives estimates have set total numbers ranging upward from 300 to as many as 1,400. The position of the present writer is that their numbers were probably significantly higher.²⁴

Implications of the Terms Geechee and Gullah for Contemporary Black Culture

The implications of the terms Geechee and Gullah for contemporary Black culture are considerable. Whereas the Geechee heritage should be a source of pride, contemporary distortions and omissions have made the Geechee heritage a target of derision as the following discussion will show. Contemporary definitions and etymologies of the term Geechee illustrate distortions and omissions that have led to confusion and mystery. Likewise, contemporary definitions and etymologies of the term Gullah illustrate distortions and omissions that have led to confusion and mystery.

According to the *Oxford English Dictionary* (Simpson & Weiner, 1989), the term Gullah first appeared in the English written literature in the May 12, 1739 issue of the *South Carolina Gazette* in the following manner: “Run away a short well set Negro Man, named Golla Harry”

(p. 944). The *Oxford English Dictionary* defines Gullah as follows:

U.S. Also. Golla, Goolah. Conjectured to be either a shortening of *Angola*, or from a Liberian group of tribes known as Golas. Used *attrib.* or *absol.* to designate Negroes living on the sea-islands and tide-water coastline of South Carolina and Georgia, and the dialect spoken by them. (Simon & Weiner, 1989, p. 944)

Thus far it appears that the editors of the *Oxford English Dictionary* have done a much better job with the term Gullah than they have with the term Geechee. Note that editors Simpson and Weiner (1989) stated that the term Gullah has been, “Conjectured to be either a shortening of Angola, or from a Liberian group of tribes known as Goals” (p. 944).

During the 1930s, the Federal government created its Federal Writer’s Project as a part of Works Project Administration (WPA). In addition to the creation of jobs in the construction field, there was the creation of jobs involving cultural projects related to theater, music, art, and the documentation of social life, including the lived experiences of formerly enslaved Black people. Under the umbrella of the WPA, the Federal government established a Writers’ Project in some states like Georgia, Florida, and Louisiana. A Georgia Writers’ Project was established with a Savannah Unit that took on the task of conducting interviews with formerly enslaved Black people, including Gullahs. Eventually, the Georgia Writers’ Project made the transition from a Federal government sponsorship to a State of Georgia sponsorship (Georgia Historical Society, 2020).

The Savannah Unit (1940/1972) operated from 1836 to 1942 and was headed by Mary Granger. Her title was District Supervisor of the Savannah Unit of the Georgia Writers’ Project. One of the key projects of the Savannah Unit was a book titled *Drums and Shadows: Survival Studies Among the Georgia Coastal Negroes*. Mary Granger (1940/1972) made the following statement in her Introduction to that book:

The coastal Negroes of Georgia are sometimes called Gullahs, although in general parlance the term is applied only to the Negroes of coastal South Carolina. Because of the similarity in type and speech, however, it is sometimes loosely extended to include the Georgia coastal Negroes as well. The place name, Geechee, derived from Ogeechee River near Savannah, is also used locally to designate the Negroes of this district. (p. xxii)

Despite Granger’s problematic definition of the term Geechee and the problematic scope of the questions in the interview schedule, the text of *Drums and Shadows: Survival Studies Among the Georgia Coastal Negroes* contains illuminating interviews with several respondents who offer interesting insights about the term Gullah.

In or around 1939, the research project field workers of the Savannah Unit (1940/1972) went to Tatemville, Georgia to conduct interviews with former enslaved Black people. The Savannah Unit (1940/1972) stated: “Extending southwest from Savannah over a widely scattered area is a section known locally as Tatemville. This settlement is inhabited largely by Negroes, some of whom are survivals of ante-bellum days” (p. 61). The Savannah Unit also added: “It is interesting to note that a number of these old people in speaking of their fellow-slaves frequently prefix ‘Golla’ to the given name” (p. 61).

According to the Savannah Unit (1940/1972), one of those persons interviewed in Tatemville by the research project field workers was Tonie Houston, an elderly preacher. Tonie

Houston was asked the question, “Do you remember any of the people brought over from Africa?” The research project field workers stated that Houston responded in the following manner:

“Yas, I know heaps ub um. Deah wuz ‘Golla’ John Wiley, ‘Golla’ Jim Bayfield—he wuz bought by Mahse Chahles Lamar, and he sold im to Mr. McMullen. Den deah wuz ‘Golla’ Jack, ‘Golla’ Tom, ‘Golla’ Silvie, ‘Golla’ Chahles Carr, ‘Golla’ Bob, Chahlotte, Cain, an Jeanette, an ‘Golla’ Alice. Dey wuz all bought by Mr. McMullen. (Quoted in Savannah Unit, 1940/1972, p. 62)

As an interviewee, Tonie Houston informed his interviewers that there were many people who had Gullah affixed to their first names.

The research project field workers of the Savannah Unit (1940/1972) made this statement about Tonie Houston:

“When asked the meaning of so many ‘Gollas,’ he replied, ‘All duh people wut come from Africa aw obuhseas wuz call ‘Gola,’ and dey talk wuz call ‘Golla’ talk.’” His knowledge of their language, gained by association with the Africans, was scant. Among the words he remembered were *musungo* tobacco, *mulafo* whiskey, and *sisure* chicken. A cow was called *gombay* and a hog *gullah*. (p. 62)

Tonie Houston made it clear that term Gullah was used to refer to people of Black African descent who came to the USA in bondage from Africa or another overseas place. He also made it clear that the term Gullah also was used to refer to the language they brought with them. With those revelations, Tonie Houston shed valuable light on the term Gullah.

In the book *Drums and Shadows: Survival Studies Among the Georgia Coastal Negroes*, the research project field workers of the Savannah Unit (1940/1972) provide additional passages that support the notion that Gullah was a term once reserved for Africans born on the continent of Africa or elsewhere in the Diaspora. One passage said: “There had also been living in Tatemville ‘Golla’ Jones Davis, an African, who, as affirmed by his relative, Solomon Davis, has not been heard of since his departure for his native land, some five or six years ago” (Savannah Unit, 1940/1972, p. 63). Another passage involves an interview with Bruurs Butler of

Grimball’s Point, Georgia and his response to a question about Gullah. The research project field workers wrote:

We asked if there had been any Gullah Negroes on the Isle of Hope in the old days and he nodded “Use tuh be many ‘Golla’ people roun yuh but dey all died out. Dey tell me them people could do all kine uh curious tings.” (p. 92)

Sadly, a close examination of *Drums and Shadows: Survival Studies of Georgia's Coastal Negroes* does not indicate that the research project field workers asked the Gullah people about the term Geechee. As mentioned above, the theory posed by the present writer is that the evidence suggests that the term Geechee originated as a war-name for Gullah-speaking Maroons during the Seminole Wars.

According to the *Oxford English Dictionary* (Simpson & Weiner, 1989), the term

Geechee first appeared in the written English literature in the September 1926 issue of the *National Geographic* in the following manner:

Among the negroes living on the Ogeechee River a patois, developed in ante bellum days, has persisted. It impresses the stranger as almost as a new language. The origin of "Geechee," as the patois is called, is explained by the fact that slaves employed on the old rice plantations were more or less isolated and rarely conversed with their white owners, with the result that their knowledge of English words was slight and the pronunciation of them was bizarre. The "Geechee" negro speaks in a sort of staccato and always seem excited when talking. His patois is encountered all along the Georgia coast. (Graves, 1926, p. 278)

Additionally, the *Oxford English Dictionary* (Simpson & Weiner, 1989) offers the following definition of the term Geechee: "U.S. dial. [f. the name of the Ogeechee river, Georgia.] . . . Also, a derogatory term for a Negro of the southern United States. Cf. Gullah (p. 417)."

Such statements regarding the term Geechee in the dictionary, which bills itself as the most important of the English language, have important implications and raises at least two significant issues: (1) purporting that the term Geechee first appeared in the *National Geographic*; and (2) purporting that Geechee is a derogatory term. First, a corollary consequence of the *Oxford English Dictionary's* inclusion of the *National Geographic* statement is that it is both misleading and erroneous. Research by the present writer indicates that the word Geechee appeared in print in at least one other publication before 1926.

In 1905, Monroe N. Work (1905a, 1905b) published two articles entitled "Some Geechee Folk-lore" in the *Southern Workman*. While employed on the faculty of the Georgia State Industrial College, as Savannah State College was then known, Work (1905a, 1905b), a Black man, collected folk-lore in the form of proverbs, miscellaneous beliefs, animal beliefs, plant superstitions, dreams, luck and personal acts from Black people living in the area surrounding the campus. Work (1905a) prefaced his collection of folk-lore with the following statement which has probably led to some of the initial confusion and mystery pertaining to the definition of the term Geechee:

The Negroes inhabiting the tide-water section of Georgia and South Carolina are so peculiar in their dialect, customs, and beliefs that the term Geechee, which means a rough, ignorant, and uncouth person, is applied to them. Their folk-lore is interesting. Although a considerable portion is of African origin it contains much that is common to the folk-lore of all races. The following examples were collected among the oyster Negroes of Thunderbolt, Georgia. It was found that this group of Negroes did not all believe in all the superstitions here given; but they held to some and rejected others as being mere superstitions handed down from a more ignorant past. On being questioned they would often say, "This is only a saying and is not true." (p. 633)

Many Black people like Monroe Work who went to predominately White institutions were conditioned to see rural people and their customs as inferior and make derogatory assertions. Like other scholars and writers, Monroe can be wrong in some areas and right in others.

It should be noted that Work was not a native of Georgia. Earl E. Thorpe (1969) has written the following regarding Monroe N. Work:

He was born of slave parents in Iredell County, North Carolina, and educated in the public schools of Kansas and at the University of Chicago. From the latter, he received the Bachelor of Philosophy degree in 1902 and an M.A. in Sociology and Psychology in 1903. From 1903 to 1908 Work taught History and Education at the Georgia State Industrial College. . . . He began his study and collection of titles on Africa in 1904 while a teacher of history at the Georgia State Industrial College in Savannah.

At the invitation of Booker T. Washington, Work went to Tuskegee in 1908 where he was Director of Records and Research for almost a generation. (pp. 137-138)

Thus, Work was an outsider who had been given a job at Georgia State Industrial College by Richard Robert Wright, Sr. at the behest of the latter's son Richard Robert Wright, Jr.²⁵ Work and Richard Robert Wright, Jr. had been fellow graduate students at the University of Chicago. Further, although neither the *Oxford English Dictionary* nor the *National Geographic* citations indicate Work (1905a, 1905b) as a source, both seem to follow that outsider's derisive surmise regarding the definition of the term Geechee. Clearly, Work's pejorative use of words such as rough, ignorant, and uncouth can be described as a derogatory assertion. Nevertheless, the *Oxford English Dictionary* (Simpson & Weiner, 1989) is clearly wrong regarding the first appearance of the term Geechee in the English written literature.

As for the definition of the term Geechee in the *Oxford English Dictionary* (Simpson & Weiner, 1989), it too is both misleading and erroneous. Geechee is defined as "a derogatory term for a Negro of the southern United States" (Simpson & Weiner, 1989, p. 417). P.H. Wood (1974) has made the following statement, "Repeatedly in America, when non-English-speaking groups have imported names which have laudatory or at least neutral implications at first, these gradually have been made common nouns and given a negative connotation by the culturally dominant class" (p. 185). The statement by P.H. Wood (1974) illustrates the process of that which happened to the term Geechee, that is, the transformation of a positive term into a negative term. During the latter part of the 20th century, many scholars and writers followed Turner (1949) and reported that the term Geechee has an African origin. In his book *Africanisms in the Gullah Dialect*, Turner (1949) said that the term Geechee is "probable African in origin" (p. 79). The problem here is that those scholars and writers have tended to overlook the "probable" in Turner's statement. Black people of African descent did contribute some place names in Georgia, South Carolina, and elsewhere, but the Ogeechee River was not one of them.

Furthermore, about eight years before the publication of his landmark book, Turner (1941a) presented a paper entitled "Linguistic Research and African Survivals" at the Conference on Negro Studies sponsored by the American Council of Learned Societies. Following the presentation of his paper, Turner participated in a question-and-answer period wherein Sterling Brown, a Black scholar and writer, asked him: "Why is the term Geechee used more than Gullah to denote this peculiar type of Negro speech?" (Turner, 1941b, p. 78). In response to that question, Turner (1941) said:

Many think that the designation comes from the name of the Ogeechee river. I think this name is an Indian word, but there is an African tribe called the Ogeechee in Liberia, and I have found a great many words from that area in this region of the United States. I suspect that it is the name of this African tribe that has been carried over. (p. 79)

Sterling Brown proceeded to make a comment and ask Turner a second question as a follow-up: “Linguistically, the Charleston area is one where a consistent speech form is found. Would not Gullah serve to designate the entire area?” (Turner, 1941b, p. 79). In his response to the comment and follow-up question, Turner (1941b) stated: “As far as I can see, there is no difference between Geechee and Gullah. In Georgia, the old people speak just as the old people in South Carolina do” (p. 79).

In his statements to Brown, Turner (1941b) said that he thought that the term Ogeechee is an Indian word—although he suspected that the term Ogeechee may have been carried over to the USA by an African tribe called the Ogeechee in Liberia.²⁶ He also stated that Geechee and Gullah speech forms were one and the same. The view of the present writer is that Turner was correct in his thinking that the term Ogeechee has an Indian origin and that he was incorrect in his suspicion that the term Ogeechee came from a tribe in Liberia. However, the view of the present writer is that Turner was correct in his position that there is no difference between the speech forms of people who have been described and identified as Geechees and Gullahs.

In sum, one significant consequence of this research is that it sheds light on the historical development of the Geechees and other Gullahs as important social groups within the Black population in this country. A second significant consequence is that this research sheds light on the finding that every original Geechee was a Gullah, but every Gullah was not a Geechee. A third significant consequence is that this research sheds light on the finding that the terms Geechee and Gullah did not become synonymous until the 20th century. A fourth significant consequence is that it sheds light on the finding that there are now Black people who self-identify as Saltwater Geechees and Freshwater Geechees. The present writer self-identifies as a Freshwater Geechee.²⁷

Summary and Conclusion

This paper has discussed race and ethnicity in the USA with special reference to the Geechee and other Gullahs. It has also defined the terms Geechees, addressed the historical development and roles of Gullah-speaking Geechee Maroons as partisans of the Seminole Nation during the three Seminole Wars against the USA. In addition, this paper has addressed the implications of the terms Geechee and Gullah for Black culture in the USA.

In an article entitled “How to Lose the Hounds: Technology of the Gullah Coast Renegade,” H. Eugene Hodges (1971) related:

I . . . hypothesize that the procedure for losing the hounds was developed originally by the field slaves on the large rice plantations in the area [Gullah Coast] and that the renegade families are just carriers of the body of knowledge. (p. 73)

Hodges (1971) has also posed the following explanation about his usage of the phrase Gullah Coast:

The Gullah Coast is a distinctive cultural area noted in the literature for its richness in folklore and folk music. It encompasses the geographical area from Charleston, South Carolina to Kingsland, Georgia and includes the offshore islands, the pine forests, and

swamps of the coastal plains. (p. 66)

The present writer, on the one hand, agrees with the hypothesis of Hodges (1971) about Gullahs originating a procedure for losing hound dogs. However, on the other hand, the present writer poses that Gullah culture extends far beyond the geographical area from Charleston, South Carolina to Kingsland, Georgia because of migration patterns and the like. Similarly, the present writer has hypothesized and developed a theory that the term Geechee was assigned to Gullah-speaking Maroons via the Creek-Seminole custom of bestowing honorary war-names on individuals and groups. Simmons (1822/1973), Swanton (1928), Sturtevant (1955), Mahon (1967), and Opala (1981) have noted the Creek-Seminole custom of bestowing honorary war-names on individuals and groups.

The evidence discussed above suggests and lends support to the following three conclusions. First, a Geechee of the 20th and 21st centuries can be defined as a descendant of antebellum Gullahs who were members of the Seminole Nation. Second, the original Geechees were Gullah-speaking Maroons who became a part of the Seminole Nation and participated in its three wars against the USA. Third, every antebellum Gullah was not a Geechee, but virtually every antebellum Geechee was a Gullah.

Notes

1. For a discussion of the concept of race as a social construction that varies from society to society, see Sills (1991).
2. For discussions of the cultural activities of Creole living in Louisiana, see the collection of essays in Hirsch and Logsdon (1992). Two very important essays in that collection include Hall (1992a) and Tregle (1992). See also, Rousseve (1936); Saxon, Dreyer, and Tallant (1945); Tregle (1952, 1982); Mills (1977); Hall (1992b), and Klein (2000).
3. For some information on how jazz was created as a dialectical relationship between Geechees and other Gullahs interacting with Creoles, see Lomax (1950) and Levine (1977). Whereas Lomax sheds light on the contribution of Creoles to the development of jazz by looking at the experience of Jelly Roll Morton, Levine sheds light on the impact of Geechees and other Gullahs on the development of jazz by looking at the experience of Willie the Lion Smith. Levine wrote:

Shortly before World War I, Willie the Lion Smith was playing the piano in a New York bar which was frequented by Gullah and Geechee Negroes from the Carolina and Georgia Sea Islands who worked on the ships and docks of the nearby West Sixties piers. "Those Geechie really went for our style of playing," Smith remembered. "Our sift, slow, four-o'clock-in-the morning music got to those folk from the South. . . . by this time we had learned to play the natural twelve-bar blues that evolved from the spirituals." The evening began with the dancing of two-steps, waltzes, and schottisches and ended in wild improvisation. "It was from the improvised dance steps that the Charleston dance originated. . . . all it really amounted to was a variation of a cotillion step brought to the North by the Geechie. There were many variations danced at the Casino and this usually caused the piano player to make up his own musical variation to

fit the dancing.” (p. 201)

Lomax informed us that “jazz is a sort of musical gumbo. But the taster, the stirrer, the pot-watcher for this gumbo was the New Orleans colored Creole” (p. xv). He further related that Louisiana had 400,000 free colored Creoles during the 1860 census. Lomax posed that New Orleans was their capitol and it was a place where “they raised the most beautiful girls, who cooked up the tastiest dishes and were courted with the hottest music of any place in the Mississippi Valley” (p. xv). He identified the factors that led to emergence of jazz in New Orleans. Lomax explained that:

Under tolerant Spanish and French rule in Louisiana, mulatto children were sent to school, taught trades, and given professional jobs. Freedmen of color helped to win the Battle of New Orleans under Andy Jackson. Before 1861, these colored Creoles accumulated fifteen million dollars worth of property, much of it in slaves; they organized literary societies and musicales and published their own newspapers, while the craftsmen amongst them built the lovely churches and homes of New Orleans and cast the lacy ironwork for its balconies and doorways. (pp. 75-76).

According to Lomax, “The Civil War reminded the Creoles that they were Negroes and second-class citizens” (p. 76). However, during the 1890s “all over the South the old order, which had given status to the Creole Negro, disappeared. Poor whites were demanding and getting jobs that had formerly been Negro prerogatives” (p. 79). In addition to the loss of employment, a city ordinance was passed on September 1, 1890 which stipulated that all Black people, including light-skinned Creoles and dark-skinned non-Creoles, were forced to live in the Storyville area of New Orleans. Lomax related:

By the 1890’s the Creoles of New Orleans were being pushed out of their old trades and down on the social scale. Soon they were to be practically eliminated from the skilled trades. Music had once been a hobby or at most the source of a few extra dollars; now those few dollars became the income for a family and music became a serious professional matter. On his way down the class scale the light-skinned Creole met the black-skinned American musician fighting his way out of the black ghetto. This meeting took place in Storyville, which opened in 1897 and offered regular, well-paid jobs to any musician who wasn’t too proud to earn a dollar in a barrelhouse. The black Americans were in there pitching for those jobs and getting them. (p. 79)

Some of Black-skinned non-Creoles in competition with light-skinned Creoles were Louis Armstrong, Mutt Carey, Bunk Johnson, Joe Oliver, Jim Robinson, and Bud Scott. Regarding the Black-skinned non-Creoles, Lomax said:

By and large these black Americans were common laborers or service workers. They were not trained musicians, but won their Storyville jobs by sheer talent. Creoles who wanted to work in Storyville, had to play in bands with them. Creoles who wanted to work in Storyville, had to play in bands with them. So for the first time since reconstruction, Creoles were compelled to accept blacks as equals and this was bitter medicine. As the mulatto group had been forced down, its caste prejudice had mounted.

The mulattoes were actually more prejudiced than the white people at that time,” dark-skinned Johnny St. Cyr somberly remarked, and his comment was confirmed every time a Creole opened his mouth. Invariably, in describing someone, a Creole would begin, “He’s kind of light brown . . .” or, “He’s real black, got bad (kinky) hair . . .” or, “He’s a real nice lookin light fellow. . . .” A man’s pigmentation was his most significant human attribute in New Orleans. (p. 80)

For Lomax, jazz was born in Storyville when dark-skinned Geechees and other Gullahs began to develop social interaction, social relationships, and social structures with light-skinned Creoles. Lomax reported that, “Light-skinned Downtown shared the bandstand with ‘real black and nappy-headed’ Uptown. There was fear and hate on both sides; but jazz demanded cooperation” (p. 80). The record is clear that Sidney Story, a White New Orleans alderman, played a major role in pushing through an 1897 municipal ordinance which created a place where all Black people had to live in that city because of de jure segregation. His actions helped create the social conditions that led to Storyville and jazz.

4. For some details on the etymology of the term Gullah, see the section of this paper titled, “Implications of the terms Gullah and Geechee for Black Culture.” Cf. J.G. Williams, (1895); J. Bennett (1908, 1909); Smith (1926); G.B. Johnson (1930, 1972, 1980); McDowell (1930); Granger (1940/1972); Savannah Unit (1940/1972); Turner (1941a, 1941b, 1949); Bascom (1941, 1991); Haskell (1964); Hair (1965); Cunningham (1970, 1992); Dilliard (1972); Rawick (1972); Skinner (1972); Jackson, Slaughter, and Blake (1974); Twining (1975, 1977); P.H. Wood (1974); Van Sertima (1976); Guthrie (1977, 1992, 1996); Joyner (1977, 1984, 1986); Jones-Jackson (1978a, 1978b, 1983a, 1983b, 1986, 1987); Vass (1979); Moore (1980); Baird and Twining (1980); Littlefield (1981); Haley (1982); I. Hancock (1980, 1986, 2014a, 2014b); Bell and Bell (1986); J. Wright (1986); Cassidy (1986); Joyner (1984, 1986); Creel (1988, 1990); Simpson and Weiner (1989); Holloway (1990); Bailey, Maynor, and Cukor-Avila (1991); Demerson (1991); Twining and Baird (1991); Holloway and Vass (1993); Mufwene and Condon (1993); Pollitzer (1993, 1999); Montgomery (1994); Geraty (1997); Goodwine (1998); Kly (1998, 1999, 2006); Mufwene, Rickford, Bailey, and Baugh (2005); Daise (2007); Wade-Lewis (2007); E.S. Campbell (2008a, 2011); Sengova (2008); Cross (2008); Morgan (2011); Pressley (2011); Manigault-Bryant (2014); Cooper (2017); and Roberts and Holladay (2019).

5. For some details on the etymology of the term Geechee, see the section below titled, “Implications of the terms Gullah and Geechee for Black Culture.” Cf. Work (1905a); Graves (1926); Puckett (1926); Bascom (1991); Granger (1940/1972); Savannah Unit (1940/1972); Turner (1941b, 1949); Grosnevor-Smart (1970); Jackson, Slaughter, and Blake (1974); Moore (1980); J. Wright (1986); Jones-Jackson (1987); Creel (1988); Simpson and Weiner (1989); Baird and Twining (1991); Twining and Baird (1991); Demerson (1991); Holloway and Vass (1993); Guthrie (1996); Goodwine (1998); The Clarity Press Gullah Project (1998); Pollitzer (1999); Daise (2007); Cunningham (2007); E.S. Campbell (2008a, 2008b, 2011); A. Campbell (2008); Sengova (2008); Morgan (2011); Pressley (2011); Manigault-Bryant (2014); Cooper (2017); and Roberts and Holliday (2019).

6. For Du Bois (1898), social groups were important for looking at social problems at the macro, middle, and micro levels of analysis.

7. After actual use of the term Maroon, in reference to fugitive enslaved people of Black African descent and their descendants in the USA, appeared in pre-Civil War books by Morse (1822); Cohen (1836); and Giddings (1858), others followed. Post-Civil War books and articles that used the term Maroon have been authored by Coe (1898/1974); Du Bois (1903); Porter Porter (1932, 1943, 1948; 1964); (1932, 1948); Aptheker (1939, 1943/1974); Franklin (1947/1980); McReynolds (1957); L. Bennett (1962/1993); Willis (1963); Bergman and Bergman (1969); Blassingame (1972/1979); Foner (1975); Milligan (1974); Davis and Donaldson (1975); Peters (1979); Price (1979); Harding (1981); Opala (1981); Ploski and Williams (1983); Katz (1986, 1996); J. Wright (1986); Franklin and Moss (1988); Franklin and Schweninger (1993); Montgomery (1994); Goodwine (1998); The Clarity Press Gullah Project (1998); Franklin and Schweninger (1999); Mulroy (1993, 2011); Montgomery (1994); Rivers (2000); Carney (2001); Daise (2007); E.S. Campbell (2008a, 2008b, 2011); A. Campbell (2008); Wasserman (2010); Morgan (2011); and Dixon (2014).

8. The distinction between “Maroon” and “outlyers” draws on Aptheker (1939, 1943/1974), and Franklin and Schweinger (1999). Aptheker (1939) reported that the Norfolk *Herald* of May 12, 1823 used the term outlyers in a news account dealing with “runaway negroes” (p. 176). Aptheker (1943/1974) also reported that, “Strikes were by no means unknown under slavery. The most method most commonly pursued was for the Negroes to flee to outlying swamps or forests, and to send back word that only if their demands—perhaps for better food or clothes, or fewer beatings, shorter hours, or even a new oversees—were met (or, at least, discussed) would they willingly return” (p. 142). In a similar fashion, Franklin and Schweinger (1999) related that one of the most common forms of rebelling on the plantation was “lying out” (p. 98). In addition, Franklin and Schweinger (1999) related that:

Slaves who ‘layed out’ often lived by fishing, hunting, stealing, trading, and looting. Sometimes they stayed near relatives or friends, or hid in quarters on neighboring plantations. They encamped near towns and cities, along rivers and streams, or in dense forests and swamps. They stayed alone, in small groups, sometimes in large bands. (p. 100).

Aptheker as well as Franklin and Schweinger have pointed out the importance of exploring Maroons and outlyers as examples of resistance in the USA. For some more information about outlyers, see Federal Writers' Project (1941a, 1941b, 1941c, 1941d, 1941e) and Reddick (1976).

9. The activities of Gullah-speaking Geechee Maroons in the Okefenokee Swamp are detailed in the next section of this paper. The next two sections of the paper draw heavily on Cromartie (1987, 2011a, 2011b, 2013a, 2013b, 2020a, 2020b).

10. For a discussion of the presence of Black people in the present limits of the USA in 1526, see Cromartie (1987, 2011a, 2011b, 2013a). During 1526, a White Spanish colonizer named Lucas Vasquez de Ayllon tried to establish a colonial settlement officially named San Miguel de Gualdape. Some scholars and writers take the position that the colonial settlement was in Georgia. That camp includes Hoffman (1990/2004, 1992); Landers (1992); and Dixon (2014). They place San Miguel de Gualdape in or near the Sapelo Sound area of McIntosh County, Georgia. Others take the position that the colonial settlement was in South Carolina or elsewhere. Smith (1992) has pointed out that there is speculation the site of the colonial settlement may have been in South Carolina or North Carolina. Nevertheless, the 100 or so enslaved Africans, who were brought by the White colonizers to build the colonial settlement, fled from it after setting buildings on fire, and joined the Guale or Yamassee Indians. Cf. T.R. Davis (1923); Craven (1971); Aptheker (1943/1974); P.H. Wood (1974); Franklin and Moss (1988); and Dixon 2014.

11. See also, "A Slave-Trader's Letter-Book" (1886); Bergman and Bergman (1969); Quarles (1987); and L. Bennett (1993).

12. Cf. Marbury and Crawford (1802); Catlin (1842); Du Bois (1892, 1896); Douglass, 1892/1962; Donnan (1935); Savannah Unit (1940/1972); Turner (1949); Mannix and Cowley (1962); Wells (1967); and Smith (1985).

13. P.H. Wood (1974) has reported that, "The influential slave merchant Henry Laurens once wrote to his agent to send fine, healthy, young Negro lads & Men, if such [are available] of any Country except Ebo" (p. 179). P.H. Wood continued: "At another time he stated his desire for slaves from Gambia & Windward coast [rice regions] . . . or the Angola Men such as are large" (p. 179). In the documentary "Family Across the Sea" (Carrier, 1991), Joseph Opala emphasizes that Henry Laurens sought enslaved Africans from Sierra Leone. Opala seems to ignore the evidence documented by P.H. Wood that Laurens also sought enslaved Africans from Angola and Gambia. The evidence documented by P.H. Wood and Elizabeth Donnan (1935) suggests that many enslaved Africans from Angola and Gambia did indeed end up in South Carolina. However, the evidence gathered by the Savannah Unit (1940/1972) of the Georgia Writers Project in *Drums and Shadows* indicates that many Igbos did end up enslaved in Georgia. Thus, one should not be surprised to find the place- name Ebo Landing on St. Simon's Island, a location where location lore holds that a boat load of Ibos headed for slavery committed mass suicide or were killed.

14. See also, Turner (1949); Herskovits (1958); Mannix and Cowley (1962); Wells (1967); Curtin (1969, 1975); P.H. Wood (1974); J. Wright (1976); Blassingame (1972/1979); Rodney (1980); Littlefield (1981); Smith (1985); Bailey (1992); and Miller (1992).

15. See also, Hodge (1907b); Moore-Willson (1910); Swanton (1922); Pennington (1930); Porter (1932, 1943a, 1943b, 1949, 1951, 1952, 1964, 1967a, 1967b); Walker (1934); Krogman (1934); Federal Writers Project (1939); Sunderman (1953); Emerson (1954); Peithman (1957); Brinton (1959); Stoutenburgh (1960); Covington (1964); Mahon (1967); Josephy (1968); Sturtevant (1971); Aptheker (1974); Irvine (1974); Littlefield (1977, 1979); Blassingame (1972/1979); V.B. Peters (1979); and Howard (1984). It should be noted that Porter (1949, 1952, 1967a, 1967b) offers an analysis of the issue concerning whether the historical figures Secoffee and Cowkeeper were the same individual. He concludes that they were not.

16. See also, Stephens (1906) Scarborough (1933); Flanders (1933); Southall (1934); Foster (1935/1978); Matschat (1938); Aptheker (1939, 1974); Porter (1946a, 1946b); Boyd (1951); Goggin (1951); Wax (1967); Brawley (1921/1968); Fairbanks (1973); Littlefield (1977, 1979); and B. Wood (1984). In the case of Stephens, he wrote in his journal on December 15, 1738 that a Captain Davis told him that he went to St. Augustine and saw runaway enslaved Africans there who had escaped from South Carolina. Stephens wrote:

What I had to remark, was a Relation he made, that no less than nineteen Negro Slaves which he had in *Carolina*, run away from him lately all at once, under that strong Temptation of the *Spaniards* making all free that fled to them from the *English*, which he said he found verified; for he saw all his said Negroes now at St. *Augustin*, who laughed at him; and on his applying to the Governor, he told him, that it was the King of *Spain's* Orders.—If the Negroes in *Carolina* can make their Escape to the *Spaniards*, notwithstanding the great Obstructions they are to meet with from this Province lying in their Way; *Quaere*, If the Use of such were permitted to this Colony, what could be expected, but they would march off when they pleased? (p. 358)

Several months before his interaction with Davis, an entry was made by Stephens on August 31, 1738 wherein he stated:

Mr. Causton called upon me, showing me a Letter he received from Capt. Gascoigne, importing his having stopt a Canoe going by, wherein three runaway Negroes from Carolina, &c. whereupon it was thought advisable to send and let publick Advertisements be made of it at Charles-Town, that the Proprietors might make a legal Claim of them in the Court of Savannah, pursuant to the Rules laid down in Act made for prohibiting the Use of Negroes in the Province of Georgia . . . (pp. 191-192)

Those 22 Gullahs from South Carolina were part of a critical mass of people who decided to head to St. Augustine and Fort Mose. The arrangement with the Spanish was that the Gullahs could have their freedom if they accepted these three conditions: (1) accept the Catholic faith; (2) adopt Spanish names; and (3) agree to fight for the Spanish crown as a military force when called upon. Gullahs fought against James Edward Oglethorpe when he attacked Ft. Mose and Ft. Castillo. They also fought alongside the Spanish when during the War of Jenkins' Ear. It should be noted that other Gullahs also headed to Florida, but chose to live as Maroons and establish independent crop-raising communities in isolated areas, including swamps. Some of those Maroon communities eventually became a part of the Seminole Nation as was the case with Negro Fort. When it was established by White colonizers from England in 1733, the goal

was for Georgia to serve as a military buffer zone between South Carolina and Spanish Florida. That is one of the reasons why the slavery of Black people got officially banned in Georgia from 1733 to 1750.

17. The editorial staff of the *Army and Navy Chronicle* appears to have made an error and reported that the letter came from Camden County, Florida instead of Camden County, Georgia. There was no Camden County, Florida in 1837 or at any other time. Porter (1943b) appears to have caught the error and reported that Camden County was in Georgia and not Florida.

18. As a matter of social control, White slaveholders attempted to stem the flow of desertions by using their Christian religion. Charles Colock Jones, Sr. (1842) published a book titled *The Religious Instruction of the Negroes in the United States* wherein he selected specific passages to teach enslaved Black people to be obedient. According to Jones, an ideal response of a “Christian Negro” to a White slaveholder was “. . . I obey and am faithful as well behind my master’s back as before his face” (p. 201). In his book, Jones emphasized some of the teachings of the Apostle Paul. Jones and some of his associates also went so far as to create an organization named the Association for the Religious Instruction of the Negroes in Liberty County, Georgia. That organization published annual reports on their proselytizing activities (Association for the Religious Instruction of the Negroes in Liberty County, Georgia, 1944). Howard Thurman (1949/1996) recalled that his former enslaved grandmother Nancy Ambrose would not allow him to read to her from the writings of the Apostle Paul. When Thurman finally asked her why, Nancy Ambrose explained that:

“During the days of slavery,” she said, “the master’s minister would occasionally hold services for the slaves . . . Always the white minister used as his text something from Paul. At least three or four times a year he used as a text: ‘Slaves be obedient to them that are your masters . . . , as unto Christ.’ Then he would go on to show how it was God’s will that we were slaves and how, if we were good and happy slaves, God would bless us. I promised my Maker that if I ever learned to read and if freedom ever came, I would not read that part of the Bible.” (p. 20)

Nancy Ambrose had been enslaved on a Florida plantation where she was born and raised. However, she was secretive at times about her past even with her grandson Howard Thurman and other relatives. Howard Thurman (1979) reported that:

Never a word was mentioned about her Seminole Indian blood, but this was not unusual. There was much intermixing between the African slaves and Florida Indians before and after the Civil War, but in those days it was rarely spoken of. Among the scattered fragments of my earliest memory are the inscrutable faces of the Seminoles—one sitting very still under an oak tree, another passing by me silently on a country road. (p. 13)

Like many other descendants of the Geechees in the Seminole Nation, she never left the southeast. Nancy Ambrose became part of a critical mass of Geechees who became a part of the larger Black population and blended into towns and cities in Florida and Georgia following 1865. It should be noted that Thurman wrote his book *Jesus Christ and the Disinherited* to show

how Jesus Christ can be used as an example to inspire others to challenge the injustices in the status quo. For Thurman, Jesus Christ was a supporter of the disinherited and not the power elite of his day. King kept a copy of *Jesus Christ and the Disinherited* in his pocket during the Montgomery Bus Boycott struggle as a source of inspiration and insight. The two men first had close contact with each other when King was a Ph.D. student and Thurman was a dean at Boston University (FM Editors, 2019).

19. Cf. J.L. Williams (1837); Aptheker (1939, 1943/1974); Porter (1945a; 1946b; 1948); Boyd (1951); Sturtevant (1953); Proctor (1965); Bergman and Bergman (1969); J. Wright (1971); Mullin (1972); Fairbanks (1973); Blassingame (1972/1979); B.Wood (1984); Mohr (1986); Franklin and Moss (1988); L. Bennett (1993); and Penningroth (1997). Sturtevant has reported that Gulas was a personal name used in the Seminole Nation. He wrote:

Gulas (6) This Spanish spelling is difficult to interpret if the name is Creek, there is the remote possibility that it stands for kalasi (the last vowel is dubious), 'Calusa,' although if so, as a name there should be another, final, element, and kalasi has not been recorded by Swanton or myself as a Creek or Seminole name-element. (p. 69)

Sturtevant overlooked or ignored the possibility of the word referring to the Gullahs. It should be noted that J.L. Williams included a glossary of Seminole (i.e., Muscogee and Miccosukee) and provided the words for White people (Ista hadke) and American Indian people (Ista chatte). However, he overlooked or ignored the Seminole word for all Black people (Estalustee). To her credit, Moore-Willson (1910) did not overlook or ignore the Seminole word for Black people in her glossary. In her vocabulary list, Moore-Willson informed us that Estalustee meant Black people; Estahadkee meant American Indian people; and Estachatee meant White people.

20. For information on the Seminole Nation's custom of giving war-names, see Sturtevant (1953).

21. Gullah-speaking Geechee Maroons were also engaged in armed struggle against White slaveholders before 1817, which some scholars pose as the official starting date of the First Seminole War. Other scholars list the official starting date of the First Seminole War with the Federal attack on Fort Negro. For information on the armed struggle activities of Gullah-speaking Geechee Maroons at Fort Negro circa 1813-1816 and Fort Mose circa 1738-1763, see Clinch (1819), Boyd (1951), Patrick (1954); Cromartie (1987); Landers (1991); and Deagan and Landers (1999). For information of the role of Gullah-speaking Geechee Maroons fighting against White slaveholders from Georgia in 1812-1813, see T. Frederick Davis (1930, 1931a, 1931b); Patrick (1954); and Cusick (2003). For information on the role of Maroons in the First Seminole War, see Simmons (1822/1973); J.L. Williams (1837); Matschat (1938); Porter (1951); Brown (1956); J. Wright (1968); Berry (1971); and Wasserman (2010). For information on the role of Maroons in the Second Seminole War, see Cohen (1836); Potter (1836); J.H. Johnston (1929); Porter (1932, 1943a, 1943b, 1941, 1944, 1947, 1950, 1964, 1971, 1997); Southall (1934); Federal Writers' Project (1941a); Tanner (1952); Neill (1956); Mahon (1967); Berry (1971); V.B. Peters (1979); Watts (1986); Klos (1989a, 1989b); Tucker (1992); Forbes (1993); Buker (1997); Kly (1998, 1999, 2006); Twyman, (1999); Rivers (2000); Wasserman (2010); and Dixon (2014). For information on the role of Maroons in the Third Seminole War, see Higginson

(1898); Webb (1909); Foreman (1955); Porter (1967a); Covington (1964, 1966,1982); and Wasserman (2010). For information on the activities of Gullah-speaking Maroons after 1842 in such locations as Georgia, Florida, Oklahoma, Texas, Mexico, Nova Scotia, Bahamas, and Liberia, see Krogman (1934); Porter (1945b, 1967b, 1996); Goggin (1946); Neill (1956); Vanstory (1970); Littlefield 1977); Mohr (1979); Bullard (1983); Howard (1984); Cromartie (1987, 2011a, 2011b, 2013a, 2013b, 2013c); Opala (1980, 1981, 1987); Mulroy (1993); Perdue (1993); Katz (1996); Von Robertson (2006, 2008, 2011); and Mock (2010). Du Bois (1985) has argued that “the so-called Seminole wars . . . were raids to secure fugitive slaves and drive out the Indians” (p. 106).

22. For more information about Jesup’s registry, see Mahon (1967); Littlefield (1977); Tucker (1992); Twyman (1999); and Kly (2006).

23. For more information about John Horse, see Porter (1943a, 1944) and Dixon (2014). Another important leader among the Geechees in Seminole Nation was John Caesar. For information about his status and role as a partisan in the Seminole Nation, see Sprague (1848), Porter (1946a), and Dixon (2014).

24. Although there is a lot of mystery and confusion in the reports regarding the total population of the Seminole Nation during the three wars, some accounts assert that Black people, which this paper refers to as Gullah-speaking Seminole Maroons, comprised at least one-fifth of that total. Cf. Cohen (1836), Sprague (1848), Porter (1932), Tanner (1952), and Littlefield (1977).

25. Richard Robert Wright, the first president of Georgia State Industrial College, and his son Richard Robert Wright, Jr. were Black men. However, both were outsiders from western Georgia. Whereas Richard Robert Wright was born on May 16, 1853 [?] in the Dalton, Georgia area, Richard Robert Wright, Jr. was born on April 16, 1878 in Cuthbert, Georgia. In his autobiography, Richard Robert Wright, Jr. (1965) recalled the situation he faced when his father moved the family to Savannah, Georgia and took the presidency position:

In the community in which I lived a slave dialect was common. It was so accepted that when one spoke correctly, he was sometimes ridiculed and called “proper” or “white folksy.” I even had a very distinct disturbing feeling when I answered, “It is I” to a question, “Who’s there?” Everybody seemed to say “Me.” When I moved to Savannah, where the “Geechee” dialect was common, I found myself in much trouble. A beautiful girl, whom I liked very much, said to me once, “I seen you put your pocketbook in your hip pocket. You goin’ loss it.” Often I was embarrassed by my associates using unconsciously correct English words which I hesitated to pronounce correctly afterwards in their presence for fear of embarrassing them. Speaking correctly seemed to be a sort of betrayal of the community which so innocently rolled off phrases of their slave inheritance, in vivacious and sometimes elegant and eloquent speech. Some of the influential “leaders” never learned to speak correctly. However, so strongly did the schools and the rising generation of young Negro-Americans emphasize correct speech that much influence was lost by the old time leaders because of lack of training. As time passes the crude errors of the first and second generation of free Negro-Americans almost passed with them. (pp. 31-32)

Richard Robert Wright, Jr. became one of the first Black persons to earn a Ph.D. in sociology when he did so in 1912 at the University of Pennsylvania. He also earned a M.A. degree in sociology from the University of Chicago. Like Monroe Nathan Work, Richard Robert Wright, Jr. went to predominately White institutions where he was conditioned to see rural people and their customs as inferior and make derogatory assertions. Also, like Monroe Nathan Work and others, Richard Robert Wright, Jr. can be wrong in some areas and right in others.

26. Although it may not be likely, there is the possibility that Africans from Kissi were took part in the 1526 rebellion, joined the Yamassee Indians, and later gave a name to the Ogeechee River.

For a discussion about the African blood and dark skin people among the Yamassee Indians, see Simmons (1822/1973) and Hodge (1907b).

27. For more information about the distinction between Freshwater Geechees and Saltwater Geechees, see Cromartie (2021) and C.W. Bailey (2021).

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Title: *Experiences of College Mathematics Students During the COVID-19 Pandemic:
A Brief Report*

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Description: *This report focuses on the experiences of more than 2700 undergraduate students enrolled in a college-level mathematics class during the COVID-19 pandemic in which all classes were taught in a virtual format. Although achievement in mathematics courses did not decline during this time, many students reported challenges associated with lack of engagement and feelings of disconnectedness. Nonetheless, approximately fifteen percent of respondents indicated a preference for virtually taught mathematics courses over traditional face-to-face classes.*

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Experiences of College Mathematics Students During the COVID-19 Pandemic: A Brief Report

Abstract

This report focuses on the experiences of undergraduate students enrolled in a college-level mathematics class during the COVID-19 pandemic. In the fall 2020 semester all mathematics classes at California State University, Fullerton were taught in a synchronous virtual format. Based on institutional data for more than 7000 students, achievement in mathematics courses did not decline during the fall 2020 semester compared with that of previous fall semesters in which courses were taught in a traditional face-to-face format. More than 2700 of the fall 2020 students participated in an online survey exploring their experiences both academically and personally during the semester. The greatest benefits identified by students were commuting advantages and having access to course materials and resources; the greatest challenges were a lack of student engagement and feelings of disconnectedness. Written comments brought these into specific relief, with students sharing personal stories of financial worry, family stress, and academic isolation. Nonetheless, approximately fifteen percent of respondents indicated a preference for virtually taught mathematics courses over traditional face-to-face classes. Results from this study may help provide useful information for colleges and universities navigate the post-pandemic era in academia.

Introduction

This study focuses on the experiences and academic outcomes of students enrolled in fully virtual mathematics courses during the pandemic. In fall 2020, more than 7000 students at California State University (CSUF) took a virtually taught mathematics course. Our goal was twofold: first, to document students' experience and academic outcomes during a truly unique moment in history; and second, to investigate the implications of this experience and how colleges and universities can more effectively adjust course offerings and choices for students in a post-pandemic era. Specifically, we investigated two research questions:

RQ1. How did academic outcomes for students taking virtual courses compare with students from previous semesters taking face-to-face courses?

RQ2. What factors were the most impactful on students' experiences during the semester?

The theoretical framework and detailed literature review for this study can be found in Clinkenbeard and Bonsangue (2021a).

Methods

A thirty-three item survey was available to students enrolled in a mathematics course during the fall 2020 semester at CSUF. The survey was divided into eight blocks of questions regarding their experiences in taking online, or virtual teaching (VT), classes in fall 2020 as compared with teaching traditional face-to-face (FF) classes in fall 2019. The survey was based in large part on surveys used in two major studies, including an NSF-funded research study (Network for Research and Evaluation, 2020) and research conducted by the Conference Board of the Mathematical Sciences (CBMS, 2020). These studies explored the effects COVID-19 had

on students' personal lives, academic work, and mental health, as well as the impact on mathematics departments of pivoting from face-to-face to virtual classes. Students also had the opportunity to respond to two open-ended questions asking about what they thought was the greatest benefit and greatest challenge of taking a virtual mathematics course. A detailed description of the methods used in this study can be found in Bonsangue and Clinkenbeard (2021).

Results

Course Outcomes

Based on institutional records, mathematics course enrollments and grade outcomes (course grade and course success rate) from fall 2015 to fall 2020 were taken as an aggregate for all students, as well as compared between students belonging to traditionally unrepresented groups in mathematics-based disciplines and students who are traditionally not underrepresented. Per CSU protocol, students of African-American/Black, Hispanic/Latinx, Native American/Indigenous, or Pacific Islander ethnicities were classified as being from underrepresented minority groups (URM). Students from white/non-Hispanic or Asian/Asian-American ethnicities were classified as being from non-underrepresented minority groups (non-URM). The average course grade, based on a standard 4-point scale, for URM students ranged from 1.96 to 2.20, while average course grade for non-URM students ranged from 2.35 to 2.62. From fall 2015 to fall 2020 the course success rate for URM students ranged from 64.8% to 70.1%, while the course success rate for non-URM students ranged from 73.0% to 79.2%. For both URM and non-URM students, the highest average course grade and course success rate occurred in Fall 2020 during virtual teaching (Table 1). However, the largest differences between the two groups occurred in fall 2020 for both average course grade (delta = 0.42) and course success rate (delta = 11.4%). The difference in average course grade for URM students was not significantly different than the mean difference in average course grade for non-URM students from fall 2015-19 ($t = 1.76, p > .075$). However, the difference in course success rate for URM students was significantly different than the mean difference in course success rate for non-URM students from fall 2015-19 ($t = 3.45, p < .001$).

Table 1: Mathematics course outcomes for URM and non-URM students Fall 2015 - Fall 2020								
		n	Course Grade			Course Success Rate		
			mean	sd	delta	mean	sd	delta
Fall 2015	URM	3165	2.01	1.225	0.34	.656	.475	.074
	Non-URM	3144	2.35	1.240		.730	.444	
Fall 2016	URM	3179	1.96	1.237	0.40	.648	.478	.093
	Non-URM	3095	2.36	1.241		.745	.436	
Fall 2017	URM	3470	2.12	1.214	0.39	.701	.458	.082
	Non-URM	3075	2.53	1.214		.783	.412	
Fall 2018	URM	3098	2.06	1.223	0.40	.674	.469	.096
	Non-URM	2966	2.46	1.210		.770	.421	
Fall 2019	URM	3596	2.16	1.235	0.38	.692	.462	.091
	Non-URM	2973	2.54	1.194		.783	.412	
Fall 2020	URM	4202	2.20	1.265	0.42	.678	.467	.114
	Non-URM	3167	2.62	1.227		.792	.406	

Survey Responses

A total of 2573 students enrolled in a mathematics course at CSUF completed the survey. Of the 2573 students, 1402 (54.5%) were URM students and 1171 (45.5%) were non-URM students. Hispanic/Latinx students comprised 93.0% of the URM group and Asian/Asian-American students comprised 67.2% of the non-URM group. More than half (57.9%) of the 2573 students indicated that they were the first in their families to attend college and nearly seven-tenths (69.3%) indicated that they were receiving financial aid.

Overall, 63.6% of the respondents indicated that they somewhat (22.9%) or strongly (40.7%) preferred face-to-face (FF) mathematics classes, while 21.2% indicated that they somewhat (13.1%) or strongly (8.1%) preferred virtual (VT) mathematics classes. For those preferring FF classes, the primary factors identified were impact on understanding of course material and performance in the course. For those preferring VT classes, the primary factors identified were commuting advantages and having online access to course materials. As a group, underrepresented minority students identified issues related to consistent internet access (13.6%) and having a quiet place to study (31.1%) at higher rates than did non-URM students (8.7% and 17.7%, respectively).

Open-ended Responses

Student respondents had the opportunity to answer these two questions at the end of the survey:

1. What was the greatest benefit of taking a virtual mathematics course?
2. What was the greatest challenge of taking a virtual mathematics course?

Responses to question 1 fell into six categories: commuting advantages (34.7%), access to course materials (34.2%), scheduling advantages (9.7%), learning new skills (6.8%), and other (5.6%); 8.9% stated explicitly that there were no advantages of taking a virtual mathematics course.

Responses to question 2 fell into seven categories: lack of student engagement (25.0%), student/faculty communication challenges (17.6%), feelings of disconnectedness (15.8%), perceived impact on course performance (15.4%), space and technology issues (12.7%), increased time demands (4.7%), and other (9.2%). URM students identified space and technology concerns at double the rate (21.0) than did non-URM students (10.5%).

Discussion and Summary

Analysis of student outcomes showed that overall achievement in mathematics courses in fall 2020 was comparable to that from the previous five fall semesters. It is possible – perhaps probable – that grading practices were affected by the move towards on-line assessment; however, a detailed analysis of two highly standardized courses, college algebra and precalculus, in which assessments, grading rubrics, and grading standards remained unchanged from fall 2019 to fall 2020, showed that there were no significant differences in course outcomes during the pre-COVID and COVID semesters (Clinkenbeard and Bonsangue, 2021b). Analysis of student survey responses, including open-ended responses, showed wide variation in how students fared during the pandemic semester. Not surprisingly, seven out of ten students reported much (46.7%) or somewhat (23.1%) higher levels of stress during the fall 2020 semester compared with the previous fall semester. Nonetheless, the majority of students seemed resilient in their commitment to complete the semester. Overall, fifteen percent of students indicated a preference for taking virtual over face-to-face mathematics courses.

There was evidence that the equity gap between URM and non-URM students widened during the pandemic semester as evidenced by a significantly greater difference in course

success rates between URM and non-URM students during the pandemic semester when compared to previous semesters. While this study was exploratory and not prescriptive in nature, there was evidence that technology and space issues may have been a factor in this: based on the survey, more than three-tenths of URM students reported that finding a quiet place to study was a challenge.

There is evidence that offering more virtual classes in mathematics (and other disciplines) may be the “new normal” for colleges and universities. In fall 2021 in which most students and faculty were cleared for on-campus classes, 101 of the 213 mathematics courses (47%) at CSUF were offered in a virtual format, including 46% of multi-section first-year and second year general education/service courses. The results of this study suggest that determining who may be good candidates for this mode of instruction is not a linear process. Access to consistently working internet and a dedicated study space are important, as is perceived impact on student performance.

While the current study is not meant to be prescriptive, it provides a real-time snapshot of the student experience taking virtual mathematics courses during the COVID-19 pandemic. Based on the results from this study, offering both virtual and face-to-face options for multi-section first-year mathematics courses may be a viable way to both meet a wider range of student needs and preferences and effectively utilize resources as institutions move into a post-pandemic era (Shalby 2021). It will be critical for university leaders, faculty, and students to be included in meaningful discussions about how this can best be achieved to ensure equity and access for all students.

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