

EXPLORATION OF A 1:1 PROGRAM IMPACT ON HIGH SCHOOL STUDENTS'  
COLLEGE AND CAREER READINESS SELF-EFFICACY

by

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## ABSTRACT

The purpose of this qualitative study was to explore senior high school students' college and career readiness self-efficacy after participating in a 1:1 setting. Student self-efficacy and teacher opinions on their students' college and career readiness self-efficacy as it relates to technology integration in the classroom was investigated. This study provides evidence of the impact of a 1:1 program in the context of student college and career readiness self-efficacy. Albert Bandura's (1994) Theory of Self-Efficacy provided the theoretical framework for this study. Bandura theorized there are four main causes of influence: mastery experiences, vicarious experiences, verbal persuasion, and emotional and physiological states. Qualitative data were collected from teachers through interviews conducted via school email. Qualitative data were collected from students through face-to-face interviews. The two data sets were analyzed using the Colaizzi method. Once analyzed, the results were compared to determine what beliefs students and teachers hold between a 1:1 setting and students' college and career readiness self-efficacy. Data analysis resulted in 10 themes: Distractions (D), Confidence (C), Advantage (A), Essential (E), Prepared (P), Encouraged (EN), Technical Difficulties (TD), Easier (EA), Success (S), and Needs Improvement (NI). While there are some concerns of distractions, technical difficulties, and needs for improvement, overall, teacher and student participants admit mastery experiences, vicarious experiences, verbal persuasion, and emotional and psychological states are all important and essential factors for the success of a 1:1 program that improves student college and career readiness self-efficacy.

## DEDICATION

This dissertation is dedicated to my parents, Danny and Sabra Davis, my husband, Taylor Mackenzie Acker, my brother, Hayden Davis, my best friend, Shanae Shaw, my 25-year-old self, and everyone else that supported me in even the smallest way through the writing of this research study.

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## CHAPTER 1

### INTRODUCTION

In the frame of education, a one-to-one computing school, or 1:1 as it is commonly referred to, is a school that gives access to digital devices for learning to all enrolled students. Students can use these digital devices to access the Internet, course materials, and other software that can enhance their educational experience both in and out of the classroom. Student engagement, motivation, and return on investment are factors in administrator and policymakers' decisions to incorporate technologies in schools (Hoffmann & Ramirez, 2018). Student college and career readiness is determined by the state of Alabama to be a student who graduates high school with the ability to qualify for entry-level college courses or a postsecondary job or job training (Conley, 2012). The State of Alabama's current measure for college and career readiness requires students to meet one criterion.

High school seniors are considered college and career ready if they meet one of the following criteria. 1. score college-ready in at least one subject on the ACT 2. score at the silver level on ACT's WorkKeys Assessment 3. earn a passing score on an Advanced Placement or International Baccalaureate Exam (college-level courses delivered in high schools) 4. successfully earn a career technical credential 5. earn dual enrollment credit at a college or university 6. successfully enlist in the military. (Spencer, 2018, para. 7)

Student college and career readiness self-efficacy may be considered by administration when deciding to implement or extend a current 1:1 program in K-12 classrooms and, even more specifically, the high school classroom. Determining a relationship between 1:1 classroom technology and student college and career readiness self-efficacy could help educators better meet students' needs and possibly work to close the 18% gap between the Alabama graduation

rate (89%) and students who graduate college and career ready (71%), as determined by the state (Spencer, 2018).

### **Statement of the Problem**

It is no secret that technology in the classroom provides students with unprecedented access to the wealth of knowledge the Internet has to offer, and the ability to interpret and create in ways that were not possible to students of years past. One-to-one (1:1) technology in a school can positively affect students over time (Berger-Tikochinski et al., 2016) by allowing students to develop information communication technology (ICT) skills. Yet, schools have canceled 1:1 programs because of high cost, failure to meet predictable goals (Berger-Tikochinski et al., 2016), or failure to achieve an increase in student achievement (Thieman & Cevallos, 2017). What if one of the measurable benefits of 1:1 would not be fully understood until students were in college or their careers, like student college and career self-efficacy?

For the purpose of meeting 1:1 program goals such as student achievement, motivation, and preparedness for college and career, it is important to measure high school seniors' college and career readiness self-efficacy to help determine a return on investment and to be another measure of student college and career readiness. This may create a better understanding of how 1:1 programs may be impacting students years into their futures. Student self-efficacy, as it relates to college and career readiness should be considered when determining a return on investment on 1:1 initiatives in K-12 schools. Much of the existing literature (Berger-Tikochinski et al., 2016; Curry et al., 2019; Dunleavy et al., 2007; Hoffmann & Ramirez, 2018; Lei & Zhao, 2008; Spencer, 2018; The Consortium for School Networking, 2019; Thieman & Cevallos, 2017) regarding technology in the classroom focuses on student attitudes about 1:1 and the benefits of technology in the classroom. The literature states that “more research is also needed on the

potential of technology and its measurable impact” (Thieman & Cevallos, 2017, p. 410). Little is known about 1:1 as it relates to student college and career readiness self-efficacy (Thieman & Cevallos, 2017). Current research (Berger-Tikochinski et al., 2016; Curry et al., 2019; Dunleavy et al., 2007; Hoffmann & Ramirez, 2018; Lei & Zhao, 2008; Thieman & Cevallos, 2017) is lacking in identifying a relationship between a high school student’s self-efficacy on college and career readiness and the integration of 1:1 in the classroom. More research is needed on the potential of 1:1 and the measurable impact on student outcomes, achievement, and performance (Thieman & Cevallos, 2017).

### **Statement of Purpose**

When devices are used consistently by both teacher and student, student attitudes about 1:1 are positive (Hoffmann & Ramirez, 2018) and students are appreciative of the opportunity they have (Curry et al., 2019) in the classroom. Therefore, the purpose of this study was to explore senior high school students’ college and career readiness self-efficacy after participating in a 1:1 setting.

Twelfth-grade students and their teachers were involved in this study to further explore student college and career readiness self-efficacy. It was important to hear from classroom teachers who are directly involved daily with students in the 1:1 setting. Teachers’ opinions on their students’ self-efficacy and how it may or may not be connected to the 1:1 setting was valuable for triangulation of the results. This study sought to understand what type of connection lays between student college and career readiness self-efficacy and a 1:1 high school setting.

### **Significance of the Problem**

This study explored student college and career readiness self-efficacy as it relates to a 1:1 high school setting. Student self-efficacy and teacher opinions on their students’ college and

career readiness self-efficacy as it relates to technology integration in the classroom was investigated. Results from this study may contribute to the decision to continue the 1:1 program at the high school where the study takes place and guide other schools in determining a factor of return on investment when implementing a 1:1 program at their school. Results from this study may locate an area of need or success in high schools preparing students for their college and career. The study may help indicate how to better meet student needs like continuing to close learning gaps between students of different cultural and socioeconomic demographics. Ultimately, this study provides evidence of the impact of a 1:1 program in the context of student college and career readiness self-efficacy.

### **Research Question**

The research question for this study was: What are senior high school students' and teachers' beliefs about the students' college and career readiness self-efficacy after participating in a 1:1 initiative?

### **Methods**

The purpose of this study was to explore senior high school students' college and career readiness self-efficacy after participating in a 1:1 setting. Bandura's (1994) Theory of Self-Efficacy served as the framework for the study and the development of the interview instrument that sought to identify student and teacher beliefs about student college and career readiness self-efficacy after participating in 1:1 classroom environment. The study used a constant comparative analysis design. Qualitative data were collected from teachers through interviews conducted via school email. Qualitative data were collected from students through face-to-face interviews. The two data sets were analyzed using the Colaizzi method. Once analyzed, the results were

compared to determine what beliefs students and teachers hold between a 1:1 setting and students' college and career readiness self-efficacy.

Data were coded and analyzed using the Colaizzi method. Transcripts from teacher interviews conducted via email and signed teacher letters of consent were kept under password protected files on the personal computer of the researcher. Hand-written student transcripts and hardcopy student assent and parent consent letters were kept under lock and key in the researcher's home.

### **Theoretical Framework**

Albert Bandura's (1994) Theory of Self-Efficacy provided the theoretical framework for this study. This theory was designed to describe efficacy, or confidence, and beliefs. One's self-efficacy largely contributes to successes in life. Bandura (1994) theorized there are four main causes of influence: mastery experiences, vicarious experiences, verbal persuasion, and emotional and physiological states.

Mastery experiences serve as personal examples of success or failure at a particular task by the person (Bandura, 1994). A student experiences a mastery experience when completing assignments or tasks successfully at least one time (Bandura, 1994). Vicarious experiences provide examples of success or failure via observation of another person's experiences (Bandura, 1994). A student experiences vicarious experiences through observing other classmates, friends, or siblings attempt assignments or tasks regardless of their success (Bandura, 1994). Verbal persuasion serves as motivation or a deterrent by either strengthening or decreasing one's belief that they can succeed at any given task (Bandura, 1994). Verbal persuasion can be internal or external to the student. Emotional and physiological states can alter how one determines their

own confidence, or self-efficacy; for example, stress can negatively impact one’s ability to perform while positive emotions will encourage one’s performance of a task (Bandura, 1994).

These four causes of influence served as the framework for this study’s survey instrument for both students and teachers. The impact the four causes of influence has on self-efficacy determines whether a student will attempt or avoid a given task. This can impact a student’s success beyond the classroom because the task could help them acquire new skills needed for college and ultimately guide their career paths (Pintrich & Schunk, 1996).

The four causes of influence were used to guide the questions used in the interview protocol. The interview questions reflected the four causes of influence and each question asked about the student or teacher’s cause of influence as it relates to the 1:1 setting and college and career readiness self- efficacy.

**Table 1**

*Bandura’s (1994) Four Causes of Influence*

Cause of Influence	Description
Mastery experiences	serve as personal examples of success or failure at a particular task by the person (Bandura, 1994)
Vicarious experiences	provide examples of success or failure via observation of another person’s experiences (Bandura, 1994)
Verbal persuasion	serves as motivation or deterrents by either strengthening or decreasing one’s belief that they can succeed at any given task (Bandura, 1994)
Emotional and physiological states	can alter how one determines their own confidence, or self-efficacy (Bandura, 1994)

### **Assumptions of the Study**

This research study was conducted under these assumptions: (a) all teachers and students were truthful and honest in their survey responses, (b) all teachers were highly qualified, (c) all students had access to the 1:1 device provided to them by the school district, and (d) all teachers made attempts to use the 1:1 device provided to them by the school district in their classroom.

### **Limitations of the Study**

The limitations of the study were (a) individual teacher technology skills were not assessed, (b) individual teacher technology skills vary, (c) individual teachers had no input in the district 1:1 technology equipment purchased for them by the district, (d) students had no input in the district 1:1 technology equipment purchased for them by the district, and (e) individual classroom instruction using 1:1 technology was not assessed.

### **Operational Definition of Terms**

**One-to-one (1:1) technology:** In this research study, 1:1 implies access to digital devices for learning to all enrolled students. Students can use these digital devices to access the Internet, course materials, and other software that can enhance their educational experience both in and out of the classroom.

**College and Career Readiness:** In this research study, student college and career readiness are determined by the state of Alabama to be a student who graduates high school with the ability to qualify for entry-level college courses or a postsecondary job or job training (Conley, 2012). The State of Alabama's current measure for college and career readiness requires students to meet one criterion.

High school seniors are considered college and career ready if they meet one of the following criteria. 1. score college-ready in at least one subject on the ACT 2. score at the silver level on ACT's WorkKeys Assessment 3. earn a passing score on an Advanced Placement or International Baccalaureate Exam (college-level courses delivered in high

schools) 4. successfully earn a career technical credential 5. earn dual enrollment credit at a college or university 6. successfully enlist in the military. (Spencer, 2018, para. 7)

General education teacher: In this research study, a general education teacher teaches all students, regardless of the students' ability.

Self-efficacy: In this research study, self-efficacy is defined by Albert Bandura's (1977) concept as a person's belief in their ability to achieve specific tasks.

### **Summary**

This dissertation includes five chapters. Chapter 1 contains an introduction, statement of the problem, statement of purpose, significance of the study, conceptual framework, and research questions. Chapter 2 discusses existing, relevant literature including technology in the classroom, how to measure 1:1 instruction, importance of 1:1, student attitudes about 1:1, teacher attitudes about 1:1, student self-efficacy, and college and career readiness. Chapter 3 discusses the research design, questions, setting, participants, and data collection and analysis. Chapter 4 discusses research findings, and Chapter 5 includes discussion, implications, conclusions, and suggestions for future research based on the research findings.

## CHAPTER 2

### REVIEW OF THE LITERATURE

This literature review offers current research pertinent to technology in the classroom, specifically 1:1 and student attitudes about 1:1, through the lens of student self-efficacy.

Although the literature discusses general technology in the classroom and student attitudes, the central focus of this study is the impact of 1:1 on student college and career readiness self-efficacy. Currently, accessible literature does not offer much information on 1:1 as it relates to student college and career readiness self-efficacy. There is literature on technology in the K-12 classroom, best practices for the technology or the importance of 1:1, and student attitudes about 1:1. The literature that is specifically about 1:1 focuses on student attitudes or “on teacher reports of instructional applications” (Thieman & Cevallos, 2017, p. 411) or “student reports of engagement and satisfaction” (Thieman & Cevallos, 2017, p. 411).

Much literature indicates a need for research on a connection between 1:1 and student self-efficacy, yet there is a lack of explicit research. According to Dunleavy et al. (2007), “in 2000, there were approximately 1000 American schools using a 1:1 model, or ubiquitous computing . . . totaling over 150,000 laptops.” Because technology’s reach is far and wide, we can imagine schools in the United States using a 1:1 model nearly 20 years later have significantly increased. In fact, “a majority (59%) of high schools report that 100% of their students have access to non-shared devices, compared to 53% the prior year” (The Consortium for School Networking, 2019, p. 14). Unsurprisingly, 1:1 programs are anticipated to increase throughout the next 3 years (The Consortium for School Networking, 2019). With this increase

can come many changes in teaching strategies and learning outcomes that require research-based evidence. Yet with the increase of 1:1, “there is still a troubling gap between the percentage of high school seniors graduating and the percentage of those seniors graduating college and career ready, as measured by the state” (Spencer, 2018, para. 3). We need to know the answers to some important questions relating both to academic and non-academic results of a 1:1 computing environment (Lei & Zhao, 2008) to better meet student needs for college and career readiness.

### **Technology in the Classroom**

Secondary educational settings have dramatically increased their technology usage over recent years (Vrba & Mitchell, 2019), and having technology in the classroom can provide many benefits beyond the secondary setting. Secondary educators must have a commitment to preparing all students for a digitally literate future (Blankenship & Margarella, 2014) to put them in a position for a digitally driven workforce, no matter the field. Technology integration in secondary, postsecondary, and the workplace has become so dynamic that educators can no longer ignore the demand to incorporate technology in daily lessons (Vareberg & Platt, 2018). In fact, 21st century students have an expectation that technology will be used in the classroom (Vareberg & Platt, 2018).

Classroom technology has the ability to further prepare digital natives in secondary and postsecondary settings alike for future job opportunities (Vrba & Mitchell, 2019). Educating the 21st century learner “through the use of a medium that reflects the interests and desires of students, teachers empower students to make decisions and create personally relevant texts” (Blankenship & Margarella, 2014, p. 151). Berger-Tikochinski et al. (2016) found that the benefits of technology in the classroom tend “to increase the longer the duration of the 1:1 program in school” (p. 186). “Through the use of technology, students can develop a deeper

understanding of content” (Blankenship & Margarella, 2014, p. 152). This provides schools with a reason to continue or extend a 1:1 program longer to see increased benefits.

With so much classroom innovation already occurring in the past 2 decades, even more growth will be demanded to keep instruction, and education as a whole, relevant for learners (Vrba & Mitchell, 2019). Some of the benefits of 1:1 devices in the classroom are “increased student and teacher communication” (Thieman & Cevallos, 2017, p. 411), and “more positive student-teacher relationships” (Thieman & Cevallos, 2017, p. 411). These result in improvements in student skills and increased student motivation (Thieman & Cevallos, 2017). Teachers and prospective teachers believe that providing students with a classroom environment that encourages technology usage is important for creating a positive learning environment (Tatli et al., 2019).

A specific example of the results from consistent 1:1 device usage in the classroom is from a longitudinal study conducted by Curry et al. (2019) at Mason County High School that went from being “classified as a ‘Needs Improvement’ school in the first year, a ‘Needs Improvement/Progressing’ school in the second year, to being classified as a ‘Proficient’ school in the final 2 years” (p. 57). These results suggested that consistent 1:1 device usage in the classroom has a direct and even immediate impact on student achievement in the classroom. The results from the study conducted by Curry et al. (2019) echoed the opinion from the U.S. Department of Education stated by Thieman and Cevallos (2017) that Federal guidelines (U.S. Department of Education, Office of Educational Technology, 2016) state the ultimate result of technology in the classroom must be to increase student achievement (Thieman & Cevallos, 2017). A 1:1 program’s objective should always be to increase student engagement and,

therefore, achievement (Thieman & Cevallos, 2017) as seen in Curry et al.'s (2019) longitudinal study.

Naturally, changes in instruction will occur when implementing 1:1 technology in the classroom, but this can help prepare students for success. "In order to help support our students and their learning, educators must find an effective way to blend the modern with the traditional while preparing our students for their adult lives in the digital era" (Blankenship & Margarella, 2014, p. 158). Classroom use of technology calls for a more communicative method of student learning and engagement, and more specifically, a method in which learners create their learning instead of passively receive information from the "sage on the stage" (Riaz, 2013).

According to Curry et al. (2019), students agree that technology in the classroom made college applications more accessible and increased their preparedness for success both in college and careers. Overall, the literature supported 1:1 technology in the classroom as it can provide students with the tools needed to succeed in both college and career (Curry et al., 2019), increase the proficiency of a school (Curry et al., 2019), can "positively affect the attitudes and perceptions of students over time" (Berger-Tikochinski et al., 2016, p. 186), increase student motivation and foster better student-teacher connections (Thieman & Cevallos, 2017), and ultimately, can increase student achievement (Thieman & Cevallos, 2017). "It is, therefore, crucial for teachers to incorporate and celebrate this medium and to redefine their role, their pedagogical approach, the learning outcomes of the course, and their teaching tools in ways that ensure that their students can relate language learned in class to their experiences outside the classroom" (Riaz, 2013, p. 306).

## **Importance of 1:1**

One-to-one (1:1) program supporters have praised the initiative as being able to change education as we know it (Dunleavy et al., 2007). For the past decade, education has seen many shifts; one, in particular, is the shift from the standard of a teacher-centered classroom to the expectation of a student-centered classroom that empowers students to create their own knowledge, and “1:1 initiatives have been found to support the transition to learner-centered classrooms” (Varier et al., 2017, p. 969). Therefore, 1:1 programs can be exponentially powerful tools for students to find success in and after high school by promoting a more learner-centered classroom (Varier et al., 2017). In other words, 1:1 programs in schools may be important to promote high student achievement. “1:1 computing led to gains in academic performance, graduation rates, and decreases in dropout rates and disciplinary actions” (Varier et al., 2017, p. 969). However, these outcomes are not consistent with schools that offer higher student-technology ratios; in other words, more students per device (Varier et al., 2017).

A 1:1 classroom environment can provide “potentially transformative added value” (Dunleavy et al., 2007, p. 440) for students and teachers alike. Lei and Zhao (2008) found that “81.8% of parents thought that the laptops had greatly helped their children with their computer knowledge and skills” (p.115). However, Dunleavy et al. (2007) stated that it is not really “about the laptops. It is about what the 1:1 laptops enable in terms of new ways of teaching and learning” (p.451). Laptops offer students the ability to access the well of knowledge that is the internet on a daily basis, which is a relatively new learning tool in schools. While access is important, 1:1 technology initiatives offer something that other educational initiatives fail to offer: equitable access to educational resources to all students in the school that the program is offered (Varier et al., 2017).

Researchers are trying to record the impact of increased 1:1 technology on whole schools, faculty, and students (Dunleavy et al., 2007). In doing this, the focus has been on academic results like grade point averages (GPAs), state-mandated tests, and district-specific tests (Lei & Zhao, 2008). While this research provides solid claims for support of 1:1 programs in schools, the research fails to determine any non-academic importance for implementing a 1:1 program. The research found students participating in the 1:1 program showed significant gains in all core subjects as well as an increase in their GPA (Lei & Zhao, 2008). According to Lei and Zhao (2008), another similar study was found “in one-to-one classrooms, technology was used more frequently, student motivation and engagement was higher, and students were more likely to use computers as a primary writing tool” (p. 100). However, these studies still did not discuss non-academic impacts from 1:1 computing like student college and career readiness self-efficacy. While quantifiable academic impacts from 1:1 classroom technology are valuable when it comes to determining a return on investment in schools, so are non-quantifiable factors like self-efficacy.

As the number of schools making the decision to become a 1:1 computing school continues to increase, it is imperative that educators, parents, and policymakers understand the importance and the role of technology in education and the impact on students both academically and non-academically (Lei & Zhao, 2008). It is essential to communicate the importance of 1:1 programs especially to those who see the programs’ “promise as simply another ‘oversold’ fad that is at best a drain on the perpetually limited education budget” (Dunleavy et al., 2007, p. 440) because the importance and benefits of 1:1 programs are not always measured in the present research, like student college and career readiness self-efficacy. Educators, parents, and policymakers must remember that exposing students to technology through 1:1 programs may

not see an immediate return on investment while students are still in the K-12 setting; the ‘fruits’ of the 1:1 program labor may not make itself fully known until students are well into adulthood attending their respective college or pursuing their career.

### **Student Attitudes About Classroom Technology**

The majority of students cannot imagine a classroom without technology (Neiterman & Zaza, 2019). Some may argue that technology is a major distraction from student learning in the classroom. However, interestingly, students feel that while technology is the means for many classroom distractions, students feel that technology is not the cause of the distractions (Neiterman & Zaza, 2019). Students even see technology distractions as the norm in the classroom environment (Neiterman & Zaza, 2019), but just because it is considered a norm by students does not mean that it creates a positive environment at all times. Widely, students do not see an issue with technology causing classroom distractions unless the off-task behavior is distracting other students (Neiterman & Zaza, 2019). For the most part, students feel that technology-based distractions are just a part of modern education, and they feel that it largely does not impact their overall classroom learning experience (Neiterman & Zaza, 2019).

Hoffmann and Ramirez (2018) found that students have an overall positive attitude toward technology usage in the classroom. They stated that “eighty-three percent of students believe technology use in classrooms does assist them in doing well in life” (Hoffmann & Ramirez, 2018, p. 53). Students who attend schools with a 1:1 program share that they have a better learning experience than had they not been exposed to the program (Berger-Tikochinski et al., 2016). It is not just student use of the technology that students express helps their overall performance; students feel “that teacher use of technology within the classroom is vital for their

overall performance in life and indicated they thrive when teachers use technology in group work” (Hoffmann & Ramirez, 2018, p. 55).

Students feel that using a computer gives them more confidence in their academic abilities (Katims & Diem, 1996). Also, students believe that technology is responsible for their feelings of performance increase because a 1:1 program allowed certain skills to strengthen like “technological resourcefulness that assisted them in adapting easily to technologies without being intimidated, digital self-efficacy, and an open mind towards technology” (Berger-Tikochinski et al., 2016, p. 171). All of these are skills that encourage lifelong learning and productivity for students. Computers and technology in general make schools more fascinating for students (Katims & Diem, 1996), which could positively impact student achievement and engagement. Technology in the classroom can positively impact all learners despite varying learning abilities because students with identified learning disabilities expressed a big desire to use more technology in the classroom as it makes them feel more confident and makes it easier to know what they are doing in class (Katims & Diem, 1996).

Many students feel that taking notes electronically is far more comfortable than taking notes on paper (Neiterman & Zaza, 2019). Modern, digital-native students are growing and living in an increasingly visual society, and with students being supportive of educators using more technology in the classroom, it is probable that classroom technology use can positively impact student learning and student engagement (Perry et al., 2012). Students having access to devices in a 1:1 setting not only enables “them to finish assignments more efficiently” (Curry et al., 2019, p. 57), but also allows their ICT, or information communication technology, skills to improve, which “may contribute to students’ ability, self-efficacy, and motivation” (Berger-Tikochinski et al., 2016, p. 171) for the future. In fact, using computers in the classroom setting

has been shown to give students increased confidence in their computer skills that translates to confidence in their skills for a future career (Katims & Diem, 1996).

Overall, students' attitudes about 1:1 are positive especially when the device is consistently used by the teacher (Hoffmann & Ramirez, 2018) and they are aware of the "unique opportunity they had participated in and were appreciative" (Curry et al., 2019, p. 57). Perry et al. (2012) found that "[o]ne hundred and twenty students (86%) indicated that they wished professors would use computers more often for in and out-of-class learning than they presently do" (p. 21). Giving students the opportunity to grow the computing skills that will be required of them in their future is important; however, it is equally important to recognize that technology can widen learning gaps for students. In other words, students who excel will continue to excel and students who struggle will potentially fall further behind (Curry et al., 2019).

### **Teacher Attitudes About 1:1**

Both 1:1 devices and the internet have made information readily available for students, which can provide many benefits that students would otherwise not receive; however, some teachers feel that these devices create new challenges for them in the classroom (Luo & Murray, 2018). Teachers are concerned with a decrease in student research and writing skills as a likely outcome of "over-dependency on technology and the internet" (Luo & Murray, 2018, p. 105). Several teachers in Luo and Murray's (2018) study expressed concerns with students' abilities to spell and write correctly. For example, students who become dependent on computers and other devices may struggle when they do not have access to spell check.

Despite these valid concerns from K-12 educators, there is also an understanding that the 21st century student is unlike any other generation. This is causing teachers to self-reflect on their teaching practices and how keeping with the old may result in less engaged learners;

teachers realize the need for trying new teaching methods and classroom tools such as 1:1 technology that are far more relevant to the 21st century learner's day-to-day life (Ertmer et al., 2012). More relevant methods of delivery of content to students can increase student engagement (Ertmer et al., 2012), and as a result, possibly student college and career readiness self-efficacy. As a whole, teachers are dedicated to improving their students' educational experience with the hope of providing students with the tools needed to be successful in college and career. So it comes as no surprise that teachers are supportive of leveraging technology to better gain student attention and better their students' education and educational opportunities (Ertmer et al., 2012). However, part of the reason some teachers have a troubling attitude toward classroom technology use is because "teacher preparation programs have failed to prepare teachers to use technology in effective ways warranting the need for reevaluation of current curriculum for pre-service teachers" (Coyne et al., 2017).

### **Bandura's Theory of Self-Efficacy**

Since the mid-20th century, several theoretical models on motivation have been guiding research in the field, but Bandura's original 1977 Theory of Self-Efficacy, and more widely known 1997 study on self-efficacy, focused on how students perceive learning and their own performance when faced with new challenges (Muenks et al., 2018). "Bandura (1997) defined self-efficacy as individuals' beliefs that they can accomplish a given activity" (Muenks et al., 2018, p. 161). The last half-century has offered several guiding theoretical models on human motivation that include expectancy-value theory on self-beliefs and values, social-cognitive theory on achievement as motivation, and achievement goal theory on student learning and performance attitudes (Muenks et al., 2018).

At first glance, self-esteem and self-efficacy appear to be the same concept; however, self-esteem can be categorized as an overall attribute or characteristic, while self-efficacy is specific to the task at hand (Kelleher, 2016). Bandura labeled the four causes of self-efficacy influence as mastery experiences, vicarious experiences, verbal persuasion, and emotional states (Bandura, 1977; Kelleher, 2016).

According to Bandura (1977), mastery experiences are the most powerful guide of a person's self-efficacy toward a given task. However, just experiencing a task does not improve a person's self-efficacy toward the task; the task "must be fairly demanding and require a combination of cognitive, behavioral, and self-regulatory tools . . . in other words success breeds success" (Kelleher, 2016, p. 71). Vicarious experiences occur when a person observes success and even failure by another person to whom they are similar; this can be an authentic measure of the person's ability to meet the task with success (Kelleher, 2016). Bandura (1977) stated that when a person receives encouragement from someone who they trust and respect, or verbal persuasion, it can increase their belief in their ability to perform and achieve the given task. "This feedback encourages one to persevere in the face of setbacks" (Kelleher, 2016, p. 71). As educators, we must be careful with our encouragement because if the person fails at the given task, they may lose confidence in the person who gave the encouragement and ultimately threaten their self-esteem (Kelleher, 2016). Lastly, emotional states can alter a person's self-efficacy toward a given task through levels of stress and anxiety about the task (Kelleher, 2016). It is important to a person's self-efficacy that stress and anxiety levels should remain lower about the given task; if a person remains stress-free, the person will ultimately establish a higher self-efficacy toward the given task (Kelleher, 2016).

## **Student Self-Efficacy**

Research supports that a student's self-efficacy in a certain area of study can act as a predictor for the student's achievement in that same area (Muenks et al., 2018). With that being said, self-efficacy is one of the best predictors of student achievement, performance, and student outcomes in any subject area or field (Muenks et al., 2018). The belief of one's ability to use a computer is referred to as computer self-efficacy (Hsiao et al., 2012). A person's positive or negative computer self-efficacy may control the favorable outcome of computer learning (Hsiao et al., 2012). It is believed that students with higher internet and technology self-efficacy may be better equipped to achieve their given tasks compared to students with lower technology self-efficacy (Nikolopoulou & Gialamas, 2017).

Self-efficacy is such a major driving force in student achievement that the higher the student's beliefs in their own abilities and ability to overcome obstacles, the more career options students will consider to be possible for them (Nikolopoulou & Gialamas, 2017). "Many researchers have found that individuals' self-efficacy in a domain predicts students' achievement in that domain, even when previous achievement is controlled" (Muenks et al., 2018, p. 161). "Self-efficacy has been shown to be one of the strongest predictors of achievement in different areas" (Muenks et al., 2018, p. 171). Alternatively, modern students, often referred to as the "Net Generation" (Morris, 2010), tend to avoid obstacles and challenges they deem to be beyond their abilities and opt for obstacles and challenges that do not exceed what they have determined to be achievable (Pintrich & Schunk, 1996). These behaviors can have a significant impact on student development and achievement (Pintrich & Schunk, 1996). Despite a higher level of computer and technology self-efficacy than past students, students beginning college are doing

so without the mastery in needed to be successful in the postsecondary setting (Balfanz et al., 2019).

### **College and Career Readiness**

Students are entering college and career at a time that is more competitive than ever before, so students must graduate from high school prepared and well-informed about both college and the workplace (Paolini, 2019). Many students in the United States are not being fully prepared for postsecondary college and career ventures (College and Career-Readiness, 2014). Because of this shortfall in preparing students for success beyond high school, the federal government has strongly encouraged states to build standards that have a central focus on improving students' college and career readiness (College and Career-Readiness, 2014). A more accurate measure of student success in the secondary setting is through College and Career Readiness standards, rather than simply obtaining a high school diploma (ACT, 2009). The number one priority for policymakers and educators should be to increase student college and career readiness through first-rate education (ACT, 2009) that includes access to technology and ensures students are fully prepared for the 21st century postsecondary classroom and workplace (Curry et al., 2019).

College and career readiness standards are a way for states, school systems, and individual schools to be held accountable for every student's preparedness for postsecondary success (Klein, 2019). While schools are being held accountable for student college and career readiness, many experts agree there needs to be more consistency because college and career readiness standards of achievement look different in nearly every state (Klein, 2019). Schools have a difficult responsibility to ensure all students graduate with the ability to perform well in postsecondary college coursework and any career they may pursue (Spence, 2007). Colleges and

employers continually express the inadequate preparedness of high school graduates (College and Career-Readiness, 2014). The feedback from colleges and employers suggests that students are still graduating from high school without the knowledge and skills required to succeed in their postsecondary setting (Balfanz et al., 2019). ACT score data from 2018 combined with consistent ACT score data from years past suggest that high school students' college and career readiness has been at a standstill and may even point to a downhill slide in level readiness (ACT, 2018).

A reality that students face today is a high school diploma is simply not what it used to be in the increasingly intricate and technology-focused world (ACT, 2009). Many educators believe that College and Career Readiness standards have an unequal weight on college readiness, which may leave students pursuing the postsecondary workforce immediately after high school still falling short of true preparedness (Mokher et al., 2018). Unfortunately, far too many high school graduates, once in college or in the postsecondary career, discover that what they learned in high school simply failed to prepare them for their next steps (ACT, 2009). "The rapid changes in technology and increased competition from industrialized nations have changed the landscape and meaning of college and career readiness" (Chapman et al., 2011, p. 1), but despite all 50 states having adopted College and Career Readiness English and math standards, there is little understanding about what educational leadership practices successfully or unsuccessfully promote the application of College and Career Ready standards (Pak & Desimone, 2019). It is important for student success that teachers promote a college-going perception by using practices (Hines et al., 2019) like 1:1 technology. "In order to enhance students' degree of college and career readiness, students need to feel prepared, supported, motivated, empowered, and knowledgeable" (Paolini, 2019, p. 11) Therefore, technology skills that empower students'

college and career readiness self-efficacy are essential when it comes to preparing students for the extremely competitive and technology-based postsecondary academics and workforce.

### **Summary**

Currently, accessible literature does not offer much information on 1:1 as it relates to student college and career readiness self-efficacy. It is important to explore the answers to some important questions relating both to academic and non-academic results of a 1:1 computing environment (Lei & Zhao, 2008) to better meet student needs for college and career readiness. No longer will passive teacher use of technology in the classroom be acceptable, and student use of technology in the classroom must center on college and career readiness.

## CHAPTER 3

### METHODOLOGY

The purpose of this study was to explore senior high school students' college and career readiness self-efficacy after participating in a 1:1 setting. The study was a qualitative case study design. Qualitative data were collected from teacher participants through interviews via email and from student participants through face-to-face interviews. The study took place in a central north Alabama high school and used qualitative data gathered from students and the teachers of those students. Bandura's (1994) Theory of Self-Efficacy served as the framework for the study and the development of the survey instrument that sought to identify the impact of a 1:1 classroom environment on student college and career readiness self-efficacy. Information about 1:1 classroom technology and student college and career readiness self-efficacy could help educators better meet students' needs and possibly work to close the 18% gap between the Alabama graduation rate and students who graduate college and career ready, as determined by the state (Spencer, 2018). Students are determined to be college and career ready if the student achieves one of the six criteria set by the State of Alabama.

#### **Setting**

The setting for the study was a Title I, public high school that serves approximately 1,000 students in North Alabama, according to the district website. The district website stated that the school district is made up of eight schools with a total enrollment of 5,052 students. The school has a secondary student:teacher ratio of 21:1 and has an average expenditure per student of approximately \$10,648, according to the district website. The school reports on the district

website a 91% graduation rate and 92% of those graduating pursue postsecondary studies. According to the school website, the school reports 58% percent of students are White, 22% are Black, 13% are Hispanic, and 7% identify as other. The current study focused on 12th-grade students because seniors have participated in the 1:1 program at the school longer than students of other grades and are at the precipice of their college and/or career and teachers of those 12th-grade students from the pseudonymous North Alabama High School (NAHS) located in North Alabama.

### **Researcher Positionality**

Being a general education classroom teacher, I have noticed that many students lack simple computing skills despite being born digital natives, or a person that is familiar with digital technologies from a very early age. Students are able to circumnavigate school system Wi-Fi protection blocks to access Netflix or the like, but many students cannot perform common computing tasks such as creating and attaching a document to an email or even drafting a professionally appropriate email. Because of these observations, I wondered how these students who are born and raised in the digital world have somehow not acquired such simple computing skills and if this lack of ability impacts their confidence, or self-efficacy, about their future college and career. This idea led to the thought of whether the 1:1 technology provided to these students is giving them more exposure, and therefore, increasing their self-efficacy toward their future or if the exposure is magnifying their inadequacies.

I am a general education teacher at the school in which the study took place. My position as a general classroom teacher provides daily experience for student college and career readiness as well as working in a 1:1 classroom setting. However, I am not a general education teacher of any students in Grade 12. I only teach students in Grade 10. My separation from the study

participants ensured that student participants should not have felt that their participation or responses were in any way connected to their course average in any class in which they are a student. My distance from the student participants ensured that bias was protected against in the study. I am not in a position of authority to any teacher participants in the study or any employee of the school system. My equal position to any teacher participants should have ensured that the teacher participants in no way felt that their responses would impact their current or future employment or that their participation was mandatory. My position as equal to any teacher participant should have ensured that bias was protected against in the study.

### **Participants**

Participants in this study were students in Grade 12 and the teachers of those students. Participants for the study were from the pseudonymous North Alabama High School (NAHS) located in North Alabama. NAHS is the lone high school in the pseudonymous North Alabama City School's district. NAHS's 2017 total enrollment was 1,005 students with a 91% graduation and 92% postsecondary bound rates, according to the district website. On average, NAHS students score 19.5 on the ACT. NAHS students are at 47% for college and career readiness, which is lower than the Alabama state average of 75% (Daily, 2019). This study explored the students' college and career self-efficacy while participating in NAHS's 1:1 setting. Eight 12th-grade teachers who met the criteria of a general education teacher within the school were solicited for interviews via a recruitment email script. All eight teachers who were solicited for interviews participated via email interviews. Approximately 30 12th-grade students at NAHS were solicited for face-to-face interviews. Of the 12th-grade students solicited for interviews, 14 students returned a signed parent letter of consent and student assent letter. Those 14 students participated in face-to-face interviews during their homeroom block.

## **Instrumentation**

The study used a qualitative case study design. Qualitative data were collected from teacher and student participants using structured interviews. The teacher interview protocol is contained in Appendix A, and the student interview protocol is in Appendix B. All interview responses were aggregated, and pseudonyms were used. Only the researcher had access to the interview data. For students agreeing to participate in the study, a parent letter of consent was sent home prior to the administration of the interviews. Only students with a signed parent consent form were allowed to participate in the interviews. Student participants signed an assent form imbedded in the parent consent form to show that they wished to participate in the study. Bandura's (1994) Theory of Self-Efficacy served as the framework for the interview questions for both student and teacher participants. Teacher participants who signed the teacher consent letter and returned it to the researcher were sent the structured teacher interview questions. Teacher participants responded to the interview questions via email to the researcher and the responses were kept password protected on the researcher's personal computer. Student participants who had the parent letter of consent and student assent form signed and returned participated in the face-to-face structured interviews. Student participants responded to questions while the researcher transcribed their responses on paper (see Table 2). Student participant names were not written down during any interview and all transcriptions were kept under lock and key in the researcher's home.

**Table 2***Student Interview Questions*

Interview Questions	Cause of Influence
1. How do you feel about your computer skills as it relates to schoolwork?	Mastery Experiences
2. What are the advantages or disadvantages to using a computer in high school?	Mastery Experiences
3. Did the COVID-19 pandemic change your beliefs about computers or computer access? Explain.	Mastery Experiences Emotional and Psychological State
4. Describe your experiences using a computer in high school. Positive or negative? Explain.	Emotional and Psychological State
5. Describe how using a computer regularly in high school make you feel or less prepared for college and career	Mastery Experiences Emotional and Psychological State
6. Describe your experience with teachers modeling computer use in class. For example, your teacher may model how to write an email or create, save, and send a document.	Vicarious Experiences Emotional and Psychological State
7. How has having teachers in high school model how to use a computer made you feel more or less prepared for college or career?	Vicarious Experiences Emotional and Psychological State
8. How do your parents and teachers make you feel about your computer skills? Are you encouraged or discouraged? Explain.	Verbal Persuasion Emotional and Psychological State
9. Explain your overall feelings toward using computers in high school.	Emotional and Psychological State

**Research Question**

The research question for this study was: What are senior high school students' and teachers' beliefs about the students' college and career readiness self-efficacy after participating in a 1:1 initiative?

## **Data Collection**

For recruitment, 12th-grade students were contacted through their “connect,” or homeroom, class at NAHS. The study was explained, and volunteers were solicited for the interviews. Students were given a parent letter of consent and only students with a signed and returned parent letter of consent were allowed to participate in the interviews. The students were also required to sign an assent form included with the parent letter of consent. The student participant interviews were conducted face-to-face at the school in which the study took place during their connect class from 11:15am-12:15pm.

Core content 12th-grade teachers were recruited via their school email. The study was explained, and volunteers were solicited for interviews and required to sign and return a letter of consent to the researcher. The interviews were conducted via email as this was more practical and respectful of the teachers’ use of time.

The time for interviews was approximately 30 to 60 minutes. The participants were contacted for member checking after the collected data were analyzed as this is the final step in the Colaizzi method for data analysis.

## **Data Analysis**

Using the qualitative case study design, the data from student and teacher participants were analyzed and interpreted. The qualitative data were analyzed using constant comparative analysis. The qualitative results were then compared during the overall interpretation. The Colaizzi method for data analysis was used and focused on descriptive phenomenology that is “concerned with revealing the essence or essential structure of any phenomenon” (Morrow et al., 2015, p. 643). The Colaizzi method for analysis was used in the analysis of the qualitative data

because “the end result is a concise yet all-encompassing description of the phenomenon under study, validated by the participants that created it” (Morrow et al., 2015, p. 643).

### **Colaizzi Method**

The Colaizzi method is a seven-step process that implements a meticulous inquiry (Morrow et al., 2015). Each of the seven steps is focused on the data (Morrow et al., 2015) (see Table 3). The data were gathered through face-to-face or electronic interviews.

**Table 3***Steps in Colaizzi's Descriptive Phenomenological Method*

Step	Description
1. Familiarization	The researcher familiarizes themselves with the data, by reading through all the participant accounts several times
2. Identifying significant statements	The researcher identifies all statements in the accounts that are of direct relevance to the phenomenon under investigation
3. Formulating meanings	The researcher identifies meanings relevant to the phenomenon that arise from a careful consideration of the significant statements. The researcher must reflexively "bracket" their pre-suppositions to stick closely to the phenomenon as experienced (though Colaizzi recognizes that complete bracketing is never possible).
4. Clustering themes	The researcher clusters the identified meanings into themes that are common across all accounts. Again, bracketing of pre-suppositions is crucial, especially to avoid any potential influence of existing theory.
5. Developing an exhaustive description	The researcher writes a full and inclusive description of the phenomenon, incorporating all the themes produced at step 4.
6. Producing the fundamental structure	The researcher condenses the exhaustive description down to a short, dense statement that captures just those aspects deemed to be essential to the structure of the phenomenon.
7. Seeking verification of the fundamental structure	The researcher returns the fundamental structure statement to all participants (or sometimes a subsample in larger studies) to ask whether it captures their experience. They may go back and modify earlier steps in the analysis in the light of this feedback.

(Morrow et al., 2015, p. 644)

### **Trustworthiness**

In qualitative research, steps must be taken to ensure the trustworthiness of the study. It was essential that I was aware of my own personal biases, opinions, and convictions that could

result in the misstatement of the lived experiences of the participants. Because of my awareness of these potential factors, measures were taken to avoid a situation that would result in loss of trustworthiness.

Participant responses were verbatim explanations of their account and lived experiences in the context of the research study. Keeping meticulous records of participant responses is one way to prevent misrepresentation or misstatement or bias imposed from myself. Second, employing objective, unbiased interview protocol with participants both known and unknown to me provided protection from biased and subjective results. Third, referencing experienced researchers for the data analysis and coding methods, such as Colaizzi's method, was used to ensure credibility and trustworthiness. Last, research participants were all encouraged to be honest in their responses. The research and objective of the study were explained to each participant. They were reminded of their right to decline to participate in the study all together or their right to decline a response to any individual question or questions that were asked during the interview at any time. A safe and objective environment, whether face-to-face or electronically, was provided for the participants to respond to interview questions. I did not provide comments or assert any personal biases, beliefs, or opinions regarding the participants' responses. Each participants' informed consent document was signed and stored under lock and key.

## CHAPTER 4

### FINDINGS

This chapter contains the results of the qualitative case study using the Colaizzi methodology conducted to explore and answer the research question: What are senior high school students' and teachers' beliefs about the students' college and career readiness self-efficacy after participating in a 1:1 initiative? The primary focus of this chapter is to describe the data collected from teacher and student participant interviews. The data collection and analysis process are detailed along with a review of findings. The overall themes uncovered are detailed based on the Colaizzi method of analysis. Tables and figures are presented to aid clarity and organization of the presented information.

#### **Purpose and Setting of Research**

As stated in Chapter 1, the purpose of this study was to explore senior high school students' college and career readiness self-efficacy after participating in a 1:1 initiative. Student self-efficacy and teacher opinions of their students' college and career readiness self-efficacy as it relates to technology integration in the classroom, or 1:1 devices, were investigated, and the findings from this study may provide evidence that supports or discourages 1:1 programs in the context of student college and career readiness self-efficacy. The findings of this study describe the opinions, experiences, and attitudes of 8 high school senior teachers and 14 high school senior students who agreed to participate in a structured interview. The study was conducted at the pseudonymous North Alabama High School (NAHS). As outlined in Chapter 3, NAHS is the lone high school in its district with a 91% graduation rate, 1,005 total enrollment, and students

who are at 47% for college and career readiness, which is significantly lower than the 75% Alabama State average, all according to the district's website and College and Career Readiness in Alabama (Daily, 2019).

The structured interviews were conducted by the researcher, who is a 10th grade teacher at the school in which this study took place, and by email. Bandura's (1994) Theory of Self-Efficacy served as the framework for the interview questions for both students and teacher participants. Each interview question was tied back to a cause of influence outlined in Bandura's (1994) Theory of Self-Efficacy. Teacher participant interviews were conducted through email as it was more practical and respectful of the teachers' use of time. Student participant interviews were conducted face-to-face. Table 4 shows the student participants' demographics at the time of the interviews. Demographic questions were optional, just as were any of the interview questions; therefore, some participants chose not to respond to demographic questions.

**Table 4***Summary of Student Participant Demographics*

Student Participant Number	Gender	Race	After High School Plans
1	F	Caucasian	4-year institution
2	Declined	Declined	Declined
3	Declined	Declined	Declined
4	M	Caucasian	2- or 4-year institution
5	M	Hispanic	Declined
6	F	Caucasian	4-year private institution
7	M	Caucasian	4-year institution
8	F	Caucasian	4-year institution
9	M	Caucasian	4-year institution
10	F	Asian	4-year institution
11	F	African American	4-year institution
12	M	Hispanic	4-year institution
13	F	Caucasian	2- or 4-year institution
14	F	Caucasian	2- or 4-year institution

Student participant demographic breakdown is 57.14% Caucasian, 14.3% Hispanic, 14.3% declined to respond, 7.14% African American, and 7.14% Asian. According to the school's website, NAHS is 65% Caucasian, 19% African American, 8% American Indian, 7% Multiracial, 1% Asian, and 16% identify ethnically as Hispanic. The demographics of the student participants in this study are similar to those of the school system as a whole.

The school website does not list a male to female ratio; however, the percentage of male and female participants in this study were 50% female, 35.7% male, and 14.3% declined to respond. A majority (78.6%) of student participants indicated they plan to attend some form of higher education whether it is a 2- or 4-year institution; while 21.43% of student participants declined to respond as to their after high school plans.

### **Data Analysis Following Colaizzi's Descriptive Phenomenological Approach**

This study aimed to explore the experiences, opinions, and attitudes of teachers and students using Colaizzi's seven-step method of descriptive data analysis. Through this methodology process, significant statements reveal cluster themes which were used to formulate a detailed and exhaustive description of the phenomenon.

The researcher familiarized herself with the data through continued and repeated review of the interview transcripts. The researcher reviewed the interviews of both student and teacher participants for significant words or statements pertaining to student college and career readiness as it relates to a 1:1 setting. A total of 68 significant words or statements were obtained from 8 structured teacher participant interview transcripts. A total of 140 significant words or statements were obtained from 12 structured student participant interview transcripts. The researcher was then able to formulate meanings from the significant words or statements relevant to the phenomenon and theme clusters were determined. An exhaustive description of the phenomenon and fundamental structure statement were developed and discussed with both teacher and student participants. Both teacher and student participants stated the findings were both true and an accurate description of their experience of student college and career readiness as it relates to 1:1 setting. No further changes or analyses were determined to be necessary as the participants validated both the exhaustive description and fundamental structure statements.

Data were organized based on the order of Colaizzi's seven-step method of descriptive data analysis, starting with step two of identifying significant statements. Cluster themes were reviewed and defined in detail. In conclusion, a comprehensive description that interprets the experience including the fundamental structure statement is presented.

## Identifying Significant Statements

Both student and teacher participant structured interview transcripts were reviewed, and significant words or statements were isolated and reviewed to confirm each aligned with the purpose of the study. The ultimate selection of significant words or statements resulted in 198 total statements from teacher and student participants. Only the most full and descriptive statements that embodied the purpose of the study were included in the analysis. Figure 1 shows a sample of identified significant statements from a teacher participant's structured interview transcript. The underlined segments of the teacher participant's structured interview transcript denote statements considered significant to the purpose of the study.

### Figure 1

*Example of Identified Significant Statements from an Interview (Teacher Participant 1, Interview Question 3)*

3. We all live in a digital world and having access to their own device during high school gives our students a definite advantage after high school over those students who did not have that access. Our students have learned the computer skills necessary to meet the initial requirements of post-secondary education or the job market which gives them an opportunity to get their foot in the door.

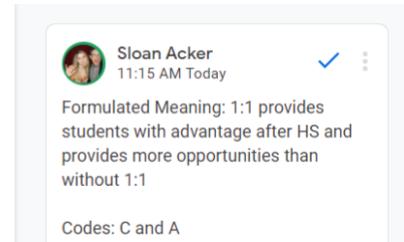
## Presentation of Formulated Meanings

Directly after the identification of significant words or statements from both student and teacher participants' structured interviews, the researcher assigned meaning to participants' significant words and statements. Each formulated meaning was coded using the initials of the potential cluster themes which resulted in 68 formulated meanings for teacher participant interviews and 130 formulated meanings for student participant interviews. Figure 2 presents an example of how formulated meanings were developed from statements and the appropriate code that was assigned by the researcher.

## Figure 2

### *Formulated Meanings and Code Development (Teacher Participant 1, Interview Question 3)*

3. We all live in a digital world and having access to their own device during high school gives our students a definite advantage after high school over those students who did not have that access. Our students have learned the computer skills necessary to meet the initial requirements of post-secondary education or the job market which gives them an opportunity to get their foot in the door.
4. The COVID-19 pandemic reinforced my belief that 1:1 high schools were at an advantage in being able to engage their students in meaningful learning. I know that educating students never stopped at non-1:1 schools, but my students and I could not have continued the level of teaching and learning that we did without our already established digital protocols.



### Cluster Themes

After the formulation of meanings from 198 significant statements of teacher and student participants, cluster themes were determined by clustering the formulated meanings that presented similar thoughts and ideas related to the study. Ten cluster themes were developed and are as follows: Distractions (D), Confidence (C), Advantage (A), Essential (E), Prepared (P), Encouraged (EN), Technical Difficulties (TD), Easier (EA), Success (S), and Needs Improvement (NI). Figure 3 offers an example of coded formulated meanings created from significant statements that were organized together under the cluster theme labeled “Distractions.”

**Figure 3**

*Development of Cluster Themes (Teacher Participants 5 and 7, Interview Question 2)*

<b>Cluster Theme:</b>  Distractions	<b>Significant Statement:</b> Students are proactive in the learning process, used for entertainment (Netflix)  <b>Formulated Meaning:</b> better student engagement but also causes lots of distractions  <b>Code(s):</b> A, D
	<b>Significant Statement:</b> Students are more successful in regard to formatting papers/essays with confidence, Students are less successful because they do not know how to self-monitor their computer usage  <b>Formulated Meaning:</b> Students are confident with formatting but struggle with computer-based distractions  <b>Code(s):</b> C, D

### **Research Question Findings**

Data analysis resulted in 10 themes: Distractions (D), Confidence (C), Advantage (A), Essential (E), Prepared (P), Encouraged (EN), Technical Difficulties (TD), Easier (EA), Success (S), and Needs Improvement (NI). Each of these themes with supporting teacher and student participant responses are discussed.

#### **Theme 1: Distractions**

The first theme, distractions, was discussed by many teacher and student participants throughout their interviews as a major concern for 1:1 computer access within their high school. Teacher 3 stated in interview Question 1 that “students are very easily distracted by their devices

and many lack the maturity to focus on the learning task assigned to them and begin playing on their computers instead.” Teacher 7 expressed that many students do not know how to use their computer beyond entertainment. Teacher 5 explained they believe the positives outweigh the distractions that computers in high school cause. Teacher 3 explained their desire to move away from 1:1 computers to simple device carts in school because the students not having devices full time would drastically cut down on the distractions the computers bring into the classroom. Teacher 2 indicated on Question 7 that “1:1 has great intentions but caused more problems for some students in the process by creating such distractions that weren’t in the classroom prior to 1:1.” Teacher 5 again explained in response to Question 8 that “some students still see computers as only an entertainment device and cause disruptions and distractions in the classroom.”

While student participants did not always use the word “distraction,” some responses pointed to distractions in general as a concern. For example, Student 14 expressed during interview Question 2 that a disadvantage to 1:1 devices in high school is some students abuse the computer to cheat or visit inappropriate sites at school and home. This response points to the code of “distraction” because students are using the computer for inappropriate things in and out of school. It is important to note that ethical use of the devices is mandatory by the school’s appropriate use policy and is closely monitored for inappropriate use by the district. Student 6 indicated that “it is very easy to waste time on stuff” on the computers. Student 6 went on to express that they “like computers in school but kids having computer all the time is not always good because they do sketchy stuff on the computer.” These responses all indicate that students are well aware of the distractions at their fingertips and admit that it is a problem that they themselves encounter or witness from their peers.

## **Theme 2: Confidence**

Confidence was discussed by teacher and student participants as a common benefit both believe to experience in the 1:1 setting. Teacher 7 stated in response to Question 3 that “1:1 in high school provides a confidence to students’ computer usage that they wouldn’t have gained on their own,” and Teacher 8 alluded to confidence in their Question 3 response, “[S]tudents gain practice on software, apps, programs that they will probably use in college and/or career.” Again, Teacher 8 alluded to confidence in their response to Question 8, “[W]ithout 1:1, students wouldn’t have the experience with computers that they need for college or career making it more challenging.” Teacher 5 asserted in response to Question 6 that “because of 1:1 most students have learned computer skills that will make them more confident and successful in college and their career.” Teacher participants went on to explain that 1:1 provides students with an opportunity to gain computer experience which gives them a confidence that students without 1:1 may lack, and this gives their students a “leg up” on the “competition.”

Student participants used the term “confident” far more than teacher participants. In fact, 13 out of 14 student participants indicated they were confident in their computer skills. In response to Question 1, Student 6 felt they “have a good grasp on technology,” Student 8 said they were “pretty competent with technology,” Student 9 stated they were very “confident in [their] skills,” Student 13 was “confident that [they] can navigate a computer,” and last, Student 14 was “fully confident in [their] computer skills.” Student 14 went on to discuss in response to Question 4 that having the computer has improved their writing and grammar skills and given them confidence when writing essays, especially because of programs like Grammarly that they would not have access to without the computer. Student 3 stated in answer to Question 5 that “using computers in high school makes me feel more confident and prepared about my future

career.” In response to Question 7 asking how teacher modeling computer use has made you feel, Student 5 went on to explain they “feel more confident because it shows me there is more to computers than just Google.” Overall, student participants believed that being in a 1:1 high school setting provided them with an advantage in computer use and knowledge that offered them a confidence in their skills and their future that they would not have without 1:1 at their school.

### **Theme 3: Advantage**

Student and teacher participants discussed the advantage that 1:1 in high school gives students. For example, Teacher 1 did not hesitate to express their belief that “1:1 gives students a definite advantage after high school. Students have computer skills for college and job market that gives them an opportunity to have their foot in the door” that students without the 1:1 experience lack. Teacher 6 explained in response to Question 3 that “computer access in high school has made students feel less intimidated and gives more opportunity to be prepared for college and career,” which addressed two themes: advantage and prepared. Five teacher participants echoed one another when asked if COVID-19 impacted their beliefs on computer use in schools. Those teacher participants explained that the pandemic experience reinforced the belief that “1:1 high schools and students were at and are still at an advantage than those schools and students without computers” (Teacher 1), “computers are vital to the educational experience” (Teacher 2), “every student needs a computer not only for high school but for valuable experience to be college and career ready” (Teacher 8), and finally “computers are no longer a luxury, they are a necessity” (Teacher 5). It is important to note that the teacher participants discussed that COVID-19 solidified the importance of technology usage in the context of access to this technology only.

Student participants used the term “advantage” in a variety of ways. For example, Student 4 stated that the “advantage to having a computer at school is it is much easier doing work and understanding information,” while Student 11 asserted “having computers in high school is an advantage because it provides more sources to get a better education.” Student 8 made a point that continues to grow increasingly more important in our post-COVID-19 world, “having computers in high school opens opportunities and offers the advantage to keep up in class when missing school or all online.” While student participants largely explained very similar beliefs, it can be summarized in a statement from Student 9 offered in Question 10, “Computers in school give students advantages and opportunities they would not have had without them.”

#### **Theme 4: Essential**

Not only did student and teacher participants express that computers and computer access for students were essential, they both explained that the COVID-19 pandemic solidified this belief. A few student participants conceded that online learning was not their first choice but recognized how much more difficult the pandemic experience would have been without computer access already provided by their school pre-COVID-19. Student participants discussed that computers provide them with more opportunities to learn more things, independence, and experience that is essential for college and career no matter the field. Student 9 explained that their experience during the pandemic has “further proved that computers in high school are necessary to accomplish schoolwork.” Student 13 stated they have always “believed that computers in high school are important and provide advantages to students.” Student 6 had a unique response to Question 3: “[T]he pandemic has made me realize that computers in high

school are a very important tool to help learning, but I don't want it to be primary way of learning.”

While teacher participants expressed that the COVID-19 pandemic made them realize just how essential computers at school and provided by the school are to student growth and success, teacher participants expressed another area as essential to student computer usage both in and out of the classroom: teacher modeling. Seven out of eight teacher participants detailed that teacher modeling of computer usage in class is vital because it sets students up for success both in and out of the classroom but also for success in college and career after high school. Teacher 1 expressed that “teacher modeling is important and teaches students how to use devices correctly and professionally; modeling is key to student success.” Teacher 2 insisted, “[T]eacher modeling of computer use for educational purposes is vital for student success.” Teachers 3 and 4 both agreed that “teacher modeling computer usage in class is very important.”

### **Theme 5: Prepared**

Preparedness for college and career was the most discussed theme by all interview participants. The 1:1 high school environment preparing students for college and career was discussed 28 times by student and teacher participants combined. Teacher 2 explained their strong belief that “without 1:1, students would be grossly ill prepared for next steps like college and career.” Teachers 1, 3, 5, and 8 all echoed that “1:1 students have less stress because they have computer skills as opposed to students without 1:1 because of less computer exposure in the classroom,” and “our students are better prepared for college and career because of the assignments given by teachers that foster proper computer usage through the 1:1 initiative”; and last, “1:1 has helped students be more prepared for college and career through proper computer engagement.”

Student participants had a common sentiment that having a computer in high school helped them be more prepared for college, career, and life after high school in general. Student 1, who also professed her disdain for using a computer daily, confessed that having a computer in high school “makes me feel more prepared because computers will be a part of my everyday life forever.” Student 4 explained that “using computers in high school makes me feel more confident and prepared about my future career.” Student 11 explained in Question 5 how several other students felt in that “using computers regularly helps me be more prepared because I have heard in college you use computers even more.”

### **Theme 6: Encouraged**

Theme 6, Encouraged, was only discussed by student participants in response to Question 8, and, overwhelmingly, students agreed they felt encouraged about their computer use and skills by their parents and teachers. Student 2 stated, “[M]y parents and teacher make me feel encouraged because they want me to be successful with computer usage.” Student 4 expressed that they felt “encouraged because teachers and my parents help me to be better in what I put my mind to.” Student 5 explained that “my teachers make me feel encouraged with computer usage in class, but my parents do not have good computer skills, so I have to figure stuff out on my own when I am at home.” Student 7 asserted, “[M]y teachers and parents help me with basic computer skills, so it is encouraging to have that support.” Student 9 stressed that “my parents know how to use computers and encourage me to spend time on the computer so that I am more prepared for college than they were at my age.” Student 8 expressed that she was “encouraged by my parents and teachers because they help me learn to teach myself computer skills which is very empowering.” Student 10 explained they felt supported and encouraged because “they [teachers and parents] tell me that I can navigate a computer well.” Student 11 explained they

“felt discouraged by computers at first, but my teachers made me feel secure in my computer use and pushed me to work on my computer skills more and that makes me feel more prepared for college.” Students 12 and 14 expressed a unique perspective and experience: “[M]y parents make me feel encouraged because they come to me with their computer issues,” and “I feel encouraged because my dad constantly asks me for help with his computer.” Student 3 offered another view on the encouragement they experienced; “I feel encouraged by my computer use by my parents and teachers because they make me understand how vital it is to use and understand how to properly use a computer in college and beyond.”

### **Theme 7: Technical Difficulties**

Technical difficulties were indicated by student participants only and by a small percentage of student participants. Only 3 out of 14 student participants indicated technical difficulties in any portion of their interview. Student participants discussed these difficulties as a challenge of the 1:1 program, but not a deterrent to it. Student participants discussed their frustrations with slow internet at school from time to time. Student 2 discussed frustrations with “technical difficulties or slow Wi-Fi at school.” Student 9 explained that while computers have so many advantages for students, “a major disadvantage is when the internet slows down.” Student 11 was the only other participant who directly stated a technical difficulty as a disadvantage to 1:1, which was “it is a disadvantage when the Wi-Fi doesn’t always work.”

Four student participants explained that technical difficulties take up class time and interfere with them completing their assignments. The difficulties are only magnified when students are at home because some students do not know how to correct the issues. One student participant indicated that this made them feel discouraged at times. Student 14 explained a point that other student participants hinted at in their responses, when there is a technical problem, “the

teachers are just as lost as students and we are all figuring it out together.” Interestingly, no teacher participants discussed technical difficulties as a challenge with the 1:1 environment in high school. This is surprising because of Student 14’s response of “teachers are just as lost as students” at times when it comes to technology.

### **Theme 8: Easier**

Student participants expressed many times how 1:1 at their school has made their school workload, assignments, and organization easier. In fact, 13 out of 14 student participants explained that having 1:1 in high school made for easy access to many resources that they would not have without the computer. Student 2 expressed on two interview questions that school is “easier because of access to complete my assignments,” and “an advantage is easy access to my assignments.” Student 3 alluded to ease in their response to Question 4: “[T]here are so many other resources other than books and more opportunities to learn new things when using computers.” Student 4 asserted that “having a computer at school makes it easier doing work and understanding information.” Student 5 responded to Question 4 that their experience with computers at school was “positive because it is an easy way to access information.” Students 6 and 7 both stated that “a pro is faster schoolwork and easier research” because of 1:1, and “research is easier and helps keep track of all my work because of 1:1.” Three student participants discussed how their school computer allowed them to have better and easier contact with teachers than they would if they did not have the computer.

No teacher participants indicated that 1:1 computers at their school made any aspect easier. Teacher participants used terms like “positive experience, become more successful, helped students.” These terms allude to ease; however, I do not feel it is appropriate to include those data in this theme category.

## **Theme 9: Success**

Teacher and student participants both discussed student success in the context of 1:1 at their school. Teacher 1 stated that computers in the classroom “foster creativity and a deeper learning that increases my students’ success.” Teacher 5 explained that computer use in class and computer use expectations were “important because it sets students up for success inside the 1:1 classroom and college and career.” Teacher 5 felt so strongly about this statement that it was repeated again while discussing Question 6, “because of 1:1 most students have learned computer skills that will make them more confident and successful in college and their career.” Teacher 8 summarized by stating, “1:1 allows for more avenues of success for students than without.”

All 14 student participants discussed teacher modeling of computer use in class as one of the most important factors in their success not only with computer use but also the course as a whole. Student 10 stated “teacher modeling computer use in class is very helpful and helps students be more successful.” Student 2 echoed much of Student 10’s response in that “teachers modeling computer use has been a good experience because it helps me be more successful when I am at home and need to complete assignments by myself.”

## **Theme 10: Needs Improvement**

Both student and teacher participants used language that indicated a need for improvement with 1:1 and computer use in the classroom in general. Student and teacher participants discussed a need for more limits on the computers. For example, Student 6 explained they believed there should be more limits or restrictions on what can be accessed on the computer because it is “too easy to waste time on stuff.” Student 12 said “we need to incorporate computer use in class more and go beyond just using Google or simple research.” Student 5

expressed a “lack of atmosphere and lots of tempting distractions” with online learning and computers in the classroom.

Teacher 4 expressed an improvement need and concern that “the school district did not offer device guidance or education for appropriate use to students,” which may help solve the other concerns by the student and teacher participants. Teacher 5 expressed a concern that “some students still see computers as only an entertainment device that causes distractions,” which echoes the sentiments of students who expressed distractions as an area that needs to be addressed by the school or school system. Teacher 7 explained that

1:1 is beneficial to K-12 students, but it is concerning how addicted and dependent students are to devices and the district should develop a plan to help reduce or solve this. Students may feel more prepared for college and career than they actually are because many teachers and administrators assume digital natives know how to properly use a computer when they actually lack these skills and a rigorous computer course requirement could help students and teachers with this problem.

### **Validation of Findings**

The practice of member checks to ensure the trustworthiness and credibility of the study is an essential step in the seven-step Colaizzi method for data analysis. Seeking validation of the findings from participants is the final step in this method. Both teacher and student participants were presented with the statement of fundamental structure and were asked if it aligned with their previous interview statements. All participants stated the findings were true and accurate with their experience as communicated in the interviews. It was deemed that there was no need for any additional inquests to this research.

### **Summary**

The findings of this study were gathered from two sources, teacher and student participant interviews. Ten main themes were formed through analyzing the interview data including Distractions (D), Confidence (C), Advantage (A), Essential (E), Prepared (P),

Encouraged (EN), Technical Difficulties (TD), Easier (EA), Success (S), and Needs Improvement (NI). Through data collection, explanation, and analysis, the exhaustive description of the findings of both teacher and student participants was developed for the purpose of this research study.

## CHAPTER 5

### DISCUSSION

The goal of this study was to explore and develop a detailed description of the participants' experiences in a 1:1 high school setting and its relationship to student college and career readiness. The research question for this study is: What are senior high school students' and teachers' beliefs about the students' college and career readiness self-efficacy after participating in a 1:1 initiative?

The Colaizzi (1978) method for data analysis was used to achieve a rich description of the phenomenon in this study. Ten cluster themes arose that best described the experiences of teacher and student participants in a 1:1 high school setting in the context of student college and career readiness. The results of the data analysis developed an exhaustive description of the 10 identified themes as detailed in Chapter 4.

This chapter includes a summary of the study that includes participants' interview discussions through the theoretical framework lens organized by Bandura's (1977) causes of influence. In closing, implications, recommendations for future research, and conclusions are discussed.

#### **Summary of Findings**

Colaizzi's (1978) seven step method of data analysis necessitated the extraction of significant statements, formulation of meanings from the statements, and development of cluster themes from the meanings that all work together to reveal the fundamental structure of the

participants' beliefs and experiences. The theoretical framework of this study, Bandura's (1977) Theory of Self-Efficacy served as a guide for the interview questions.

## **Discussion of Findings**

### **Mastery Experiences**

Mastery experiences, according to Bandura (1977), are considered the most important gauge of a person's self-efficacy toward a task. Teacher and student participants' overall beliefs about students' college and career readiness self-efficacy after participating in a 1:1 initiative can be categorized as very strong and positive. Mastery experiences informed interview question responses revealed the themes of distractions (D), confidence (C), advantage (A), prepared (P), success (S), technical difficulties (TD). For example, in response to Question 1 supported by mastery experiences (see Table 3), Teacher 1 discussed their students' computer skills as strong because of frequent and encouraged use in the classroom, and student participants all stated they feel confident (C) in their experience and skills with computers, which aligns with Bandura's (1977) cause of influence of mastery experiences and supports the themes Encouraged and Prepared.

Teacher 1 asserted during interview Question 2 that the positives far outweighed the negatives like distractions (D) and technical difficulties (TD) because they believe continued, well-planned computer use in classroom fosters creativity and promotes deeper learning for students, or the theme of success (S). This finding echoed Blankenship and Margarella's (2014) findings that "Through the use of technology, students can develop a deeper understanding of content" (p.152). While computer use in class was considered by both teacher and student participants to be essential to provide students with the mastery experiences they need for college and career readiness self-efficacy, both groups of participants expressed a concern with

computer-based distractions that have been observed to cause an over-dependence on the computers (Luo & Murray, 2018), echoed by 75% of the teacher participants and 71.4% of the student participants. According to Nikolopoulou and Gialamas (2017), the more a student believes in their own abilities, the more future career options the student will consider to be achievable. This is true for student computer self-efficacy, and all student participants believed they possess strong computer skills through consistent and continued use and practice in class, or mastery experiences.

Mastery experiences aligned Question 5 revealed that 100% of student participants in this study believed having 1:1, or computer use regularly in high school, makes them feel more prepared for college and career. This is a rate higher than that found by Hoffmann and Ramirez in 2018, “Eighty-three percent of students believe technology use in classrooms does assist them in doing well in life” (p. 53). These findings indicate that computer-based mastery experiences are paramount to student college and career readiness self-efficacy and student success in general, as supported by both student and teacher participants. The school in which this study took place and other schools looking to incorporate or expand a 1:1 program could use these findings to support the decision as it has revealed that despite distractions (D), student and teacher participants believed the 1:1 program provided appropriate mastery experiences that afforded students with confidence (C), advantages (A), preparedness (P), and success (S) needed to be college and career ready.

### **Vicarious Experiences**

Vicarious experiences are experiences of a person observing success or sometimes failure of another person (Bandura, 1977). Bandura (1977) asserted vicarious experiences are as essential as mastery experiences in that the vicarious experiences can increase a person’s belief

of their abilities to achieve a task. Student and teacher participants' overall beliefs about teacher modeling of computer use in class can be considered unanimous and positive. Vicarious experiences-informed interview question responses revealed the themes of Essential (E), Encouraged (EN), and Success (S). For example, in response to Question 6 supported by vicarious experiences, Student 14 addressed that teacher modeling of computer use in class is important even if the teacher is learning alongside students because sometimes "we are all figuring it out together."

Morris (2010) and Pintrich and Schunk (1996) found that students tend to avoid challenges they consider to be beyond their abilities and sometimes lower their goals to fit what they deem as achievable. Without students' vicarious experiences of teacher modeling both successes and failures, students would not be as confident in their abilities to succeed or overcome as Student 13 discussed, "[T]eacher modeling of computer use in class made me feel I am able to better problem solve and figure out any issue." With that being said, 100% of student participants determined teacher modeling of computer use in class, or vicarious experiences, to be vital to their college and career readiness self-efficacy and therefore their success. This means vicarious experiences of teacher modeling computer use in class provided students with significant influence that promoted their achievement levels directly in high school, and in turn, their achievement in their college and career as Bandura (1977) outlined. This is further supported by Hoffmann and Ramirez's (2018) study that found "students from the survey believe that teacher use of technology within the classroom is vital for their overall performance in life" (p. 55). Teacher 5 stated, "[T]eacher modeling computer usage and expectations is important because it sets students up for success inside the 1:1 classroom and for college and career."

Seven out of eight (88%) teacher participants shared Teacher 5's belief that teacher modeling, or vicarious experiences, were vital to students' college and career readiness self-efficacy. Vicarious experience-aligned interview questions revealed that participants believed 1:1 programs with teacher modeling were essential for the success of students and because of this "teachers can no longer get away with leaving technology out of the curriculum" (Vareberg & Platt, 2018, p. 27).

This study has shown through student and teacher participant responses that teacher modeling, as a vicarious experience, is so vital that to ignore it as a cause of influence for student success would negatively impact students' college and career readiness self-efficacy. This is supported by Vrba and Mitchell's (2019) statement, "Technology will impact future job opportunities for students" (p. 4). These findings indicated teacher modeling of computer use, or vicarious experiences, are a driving force for student academic success and should not be overlooked. The school in which this study took place and other schools looking to expand or create a 1:1 program must consider vicarious experiences for students as a leading cause of influence. This is revealed through student and teacher participants' responses that despite sometimes learning some computer use together, both believed the 1:1 program provided appropriate vicarious experiences that grant students essential (E) skills, provided a sense of encouragement (EN), and further assured student success in and beyond the classroom.

### **Verbal Persuasion**

Verbal persuasion is when a person or student is given encouragement from someone they trust like a teacher or their parents (Bandura, 1977). This can increase their own beliefs in their ability to achieve a given task. Verbal persuasion-informed interview question responses revealed the themes of Encouraged (EN) and Prepared (P). For example, in response to Question

8, Student 7 believed that their teachers and parents have made them feel encouraged in their computer abilities because both have helped them learn the skills needed to use the computer successfully which is empowering for college and career. Ninety-three percent of student participants felt encouraged by their teachers and parents in their computer skills and this made them feel prepared for college and career just as Student 7 asserted. This means the verbal persuasion cause of influence is a reason for student success because “self-efficacy beliefs are stronger predictors of student outcomes” (Muenks et al., 2018, p. 171).

While student participants stated they have faced computer-based challenges before, they felt that the encouragement of their teachers and parents gave them the perseverance they needed to complete a task successfully, which made them feel more prepared for college and career. This is supported by Kelleher’s (2016) findings that through feedback from a trusted person this “encourages one to persevere in the face of setbacks” (p.71), which is a skill needed by all students during high school but especially post-high school. Student participants repeatedly stated they felt encouraged (EN) by their teachers and, at times, parents, through technology use in the classroom and at home. The benefit of the verbal persuasion that student participants stated they received as a result of the 1:1 program at their school increased student and teacher relationships which resulted in greater student motivation (Thieman & Cevallos, 2017) and, in turn, greater student success and college and career readiness self-efficacy.

### **Emotional and Psychological States**

Emotional and psychological states can alter how one determines their own confidence, or self-efficacy (Bandura, 1994). These alterations in self-efficacy can occur through stress and anxiety (Kelleher, 2016). Ninety-three percent of student participants felt that having computers in school has made their high school experience easier, therefore less stressful, and they felt

more prepared for college and career because of it. Emotional and psychological states-informed interview question responses revealed the themes of Easier (EA) and Prepared (P). Despite concerns of increased distractions (D), technology dependence, and technical difficulties (TD), 100% of teacher participants responded that 1:1 has helped students be more prepared for college and career. Teacher participants agreed, and according to Teacher 1's response to Question 7, that students have less stress because they have been encouraged by teachers to use computers in class, which increases their computer skills and provides an advantage over students without 1:1 because of less computer exposure.

A reduction in student stress level as a result of the 1:1 program points to greater student preparedness and success for their college and career over those students attending a non-1:1 program school. This means that students' emotional and psychological state is in a less stressful place, even if it is just a perceived sense of easier (EA), that allows them to better acquire the skills needed to be prepared and feel confident about their next steps after high school.

Being able to offer a safe environment emotionally and psychologically because of a 1:1 program should be a deciding factor in implementing or expanding the program just as with mastery and vicarious experiences, and verbal persuasions. Because student participants have been supported in their technology usage both at school and at home on a large scale by teachers and parents, student participants feel these skills make stressful times easier (EA) and this attitude "influences their motivation to learn in a mobile learning environment . . . and has a significant impact on their learning performance" (Nikolopoulou & Giialamas, 2017, p. 55) making them feel more prepared (P) and confident (C) for college and career. As Bandura (1977) asserted, a person's belief about a certain task's obtainability, in this case college and career readiness, is determined by the four causes of influence, and both teacher and student

participants, overall, believed that students are better off and at an advantage for college and career because of the 1:1 initiative at their school.

### **Implications**

The research question for this study was *What are senior high school students' and teachers' beliefs about the students' college and career readiness self-efficacy after participating in a 1:1 initiative?* While 1:1 participants indicated three negative themes of distractions, technical difficulties, and needs improvement, the positives of a 1:1 high school environment far outweighed the negatives. These findings were consistent for both student and teacher participants who were interviewed independently of one another. The findings revealed that computer access in high school through a 1:1 program is well received, appreciated, encouraged, and desired for students because of the value both student and teacher participants believe it brings to the educational experience. This is achieved by providing students with needed causes of influence to gain college and career readiness self-efficacy required for success in their chosen fields as determined by Bandura (1977). The findings could be used by the school in which the study took place to help determine a return on investment for the cost of the 1:1 program on the school's budget, as well as to validate the importance of a 1:1 program for a school considering adopting a 1:1 program for their own school.

This study benefits students at the school in which this study took place because the results could be used to keep funding or even expand the current 1:1 program. School systems, while oftentimes not recognized as a business, still have to function as a business at times; this means the school system must justify expenditures not only within itself but also to state and federal governments to account for state and federal dollars spent. This study could be used as an example of the impact of a 1:1 program on students' college and career readiness self-efficacy to

further justify dollars being spent on expensive equipment but with priceless impacts on students' growth and success.

No entity is perfect, and this is true for K-12 schools and 1:1 programs. There are always areas that need improvement. The 1:1 program at the school in which this study took place should address the issues brought up by both student and teacher participants. Distractions in the classroom because of technology was the dominant negative theme. The school could address these issues by implementing more strict policies on classroom technology use instead of the current "free-for-all" policy that does not restrict students to certain times or assignments. This means students can access their 1:1 device at any point in the classroom environment with little to no restrictions.

Teachers could be better supported by administrators in disciplining students abusing technology use in the classroom. Also, the district technology coordinator can create more access restrictions beyond the current restrictions that allow sites like Facebook, Netflix, and Disney+ through the district filter. Addressing technical difficulties such as slow Wi-Fi is problematic. The simple answer is to purchase a larger server; however, that is rarely fiscally smart. I believe that addressing the distractions' problem by "tightening the net" for what the filter allows through the internet on the school server will free up bandwidth, so that could possibly "kill two birds with one stone." Beyond this suggestion, increasing Wi-Fi speed could be difficult if not impossible for a school district, especially districts outside the city limits where Wi-Fi access is not readily available at high speeds.

The results of this study respond to the study problem, align with the purpose, demonstrate significance, and contribute to existing literature as described in Chapter 2 by having produced findings that revealed despite some challenges with 1:1, students and teacher

participants believed that 1:1 increases a student's educational experience and increases student college and career readiness self-efficacy.

### **Recommendations for Future Research**

This study provides descriptive data that could be used to guide future research in the area of 1:1 program impact on student college and career readiness self-efficacy. This study should be considered a starting place for determining a 1:1 program's impact on student college and career readiness self-efficacy. Expanding this research may further pinpoint areas of growth for a 1:1 program. For example, it is recommended that a future study examine more than just high school seniors. The study should expand to include interviews from all students in grades 9-12. Other variables to consider for future research would be to include a non-1:1 school's student and teacher beliefs on college and career readiness with the lack of 1:1 access for students compared to this study's findings. Replications of this study in a variety of school settings, like rural and urban, could provide further literature to support the expansion of 1:1 programs in similar schools. It is recommended to include questions on student socioeconomic status as this may further identify areas for improvement or successes in a 1:1 initiative.

This research could be used in the real world because principals, superintendents, and schoolboards need factual, research-based findings to support every dollar they spend in their schools to meet student needs, increase college and career readiness, and provide students with more educational experiences. If the future research as described above can be used by principals, superintendents, and school boards as decision-making tools, the research will have served a real-world purpose to help real students and not just contributed to theoretical research. While theoretical research can be positive and powerful, school systems are desperately looking

for answers and support to quickly, cost-effectively, and powerfully helping students today and not years down the road.

### **Conclusion**

The purpose of this study was to explore senior high school students' college and career readiness self-efficacy after participating in a 1:1 program using Colaizzi's (1975) seven-step method of descriptive data analysis. Through this process, significant statements were outlined from interview data, and meanings were formulated from each significant statement. From those meanings, the data were organized into 10 cluster themes. The cluster themes provided an organization for the experiences of both teacher and student participants that were supported by Bandura's (1977) self-efficacy causes of influence and literature discussed in Chapter 2. The researcher believes the findings of this study realistically summarize the student and teacher participants' beliefs that a 1:1 program does impact a student's college and career readiness self-efficacy.

While there are some concerns of distractions, technical difficulties, and needs for improvement, overall, teacher and student participants admit mastery experiences, vicarious experiences, verbal persuasion, and emotional and psychological states are all important and essential factors for the success of a 1:1 program that improves student college and career readiness self-efficacy.

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APPENDIX A  
IRB APPROVAL LETTER

October 13, 2020

Taylor Davis  
Department of ELPTS  
College of Education  
Box 870302

Re: IRB # 20-09-3919: "Exploration of a 1:1 Program Impact on High School Students' College and Career Readiness Self-Efficacy"

Dear Ms. Davis,

The University of Alabama Institutional Review Board has granted approval for your proposed research. Your application has been given expedited approval according to 45 CFR 46. You have been granted a waiver of consent and HIPAA authorization for the chart audit phase of the study. Approval has been given under expedited review category 7 as outlined below:

*(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.*

The approval for your application will lapse on October 12, 2021. If your research will continue beyond this date, please submit the annual report to the IRB as required by University policy before the lapse. Please note, any modifications made in research design, methodology, or procedures must be submitted to and approved by the IRB before implementation. Please submit a final report form when the study is complete.

Please use reproductions of the IRB-approved informed consent form to obtain consent from your participants.

Sincerely,



Carriantato T. Myles, MSM, CIM, CIP  
Director & Research Compliance Officer

cc: Dr. Margaret Rice

APPENDIX B  
TEACHER EMAIL INTERVIEW PROTOCOL

## **Teacher Email Interview Protocol - Student College and Career Readiness Self-Efficacy**

Researcher will state before the interview begins,

*Welcome and thank you for participating. I am Sloan Davis, a graduate student at the University of Alabama working on my PhD in Instructional Technology. My study examines senior high school students' college and career readiness self-efficacy after participating in a 1:1 setting. I am emailing you a series of questions and I would like you to give your perspective. Your responses will be anonymous to anyone but me, and in any reports or publications. Although I may use quotes from your responses, the quotes will use a pseudonym. You may opt out of the interview at any time.*

College and Career Readiness Self-Efficacy Teacher Email Interview Questions:

1. How would you describe your students' use of computers for academic purposes in class?
2. How do you think having a computer to use in high school has made your students more successful or less successful in your class?
3. How do you think having a computer to use in high school has made your students feel more prepared for life after high school?
4. Did the COVID-19 pandemic change your beliefs about computers or computer access? Explain.
5. How do you think that having a teacher model computer usage in class makes your students feel more prepared for life after high school?
6. How well do you think your students are prepared for college or careers after participating in the 1:1 initiative?
7. How do you think the 1:1 initiative has impacted your students regarding college or

career readiness?

8. In what ways do you think your students might not be as prepared for college or careers without a 1:1 initiative?
9. Is there anything else you would like to discuss concerning your students' use of computers or their preparation for college or career?

APPENDIX C

RESEARCHER SCRIPT FOR STUDENT INTERVIEW PARTICIPATION

## Researcher Script for Student Interview Participation

The researcher will read the following statement aloud to the student interviewee before conducting the interview.

*Welcome and thank you for participating. I am Sloan Davis, a graduate student at the University of Alabama working on my PhD in Instructional Technology. My study examines senior high school students' college and career readiness self-efficacy after participating in a 1:1 setting. I am going to ask you a series of questions and I would like you to give your perspective. If you need a break, please let me know and we can take a break. I will be recording you, although this is for my reporting process and you will not be identified. Your responses will be anonymous to anyone but me, and in any reports or publications. Although I may use quotes from your responses, the quotes will use a pseudonym. You may opt out of the interview at any time. Do you have any concerns or questions before we begin?*

Researcher will ask the student the interview questions if they returned a signed parent letter of consent and signed an assent form. Researcher will state to the student when finished with the interview, *"Thank you for your participation in this research study."*

Researcher will place all interviews under lock and key.

APPENDIX D  
STUDENT INTERVIEW PROTOCOL

## **Student Interview Protocol for College and Career Readiness Self-Efficacy**

Researcher will state before the interview begins, *“Welcome and thank you for participating. I am Sloan Davis, a graduate student at the University of Alabama working on my PhD in Instructional Technology. My study examines senior high school students’ college and career readiness self-efficacy after participating in a 1:1 setting. I am going to ask you a series of questions and I would like you to give your perspective. If you need a break, please let me know and we can take a break. I will be recording you, although this is for my reporting process and you will not be identified. Your responses will be anonymous to anyone but me, and in any reports or publications. Although I may use quotes from your responses, the quotes will use a pseudonym. You may opt out of the interview at any time. Do you have any concerns or questions before we begin?”*

### **Interview Section 1: Demographics**

1. Please specify your gender.
2. Please specify your race.
3. Please specify your after high school plans.

### **College and Career Readiness Self-Efficacy Interview Questions:**

1. How do you feel about your computer skills as it relates to schoolwork?
2. What are the advantages or disadvantages to using a computer in high school?
3. Did the COVID-19 pandemic change your beliefs about computers or computer access?  
Explain.

4. Describe your experiences using a computer in high school? Positive or negative?  
Explain why you feel this way?
5. Describe how using a computer regularly in high school makes you feel more or less prepared for college or career?
6. Describe your experience with teachers modeling computer use in class. For example, your teacher may model how to write an email or create, save, and send a document.
7. How has having teachers in high school model how to use a computer made you feel prepared for college or career?
8. How do your parents and teachers make you feel about your computer skills? Are you encouraged or discouraged? Explain.
9. Explain your overall feelings toward using computers in high school.
10. Is there anything else you would like to discuss concerning your use of computers or your preparation for college or career?