INCREASING THE NUMBER OF HIGH SCHOOL SENIORS MEETING THE SOUTH CAROLINA "PROFILE OF A GRADUATE" MANDATE

by

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Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

This applied study aimed to solve the problem of the inadequate number of high school seniors at Avenger Career Technology Center that meet the requirement of South Carolina's Profile of a Graduate. A multimethod approach was utilized to examine the problem of high school seniors not meeting college and career mandates. Data was collected through interviews with administrators, a focus group of ACTC students, and a quantitative survey from Avenger Career Technology Center teachers. Interviews were conducted with five administrators. A focus group of 10 students was held. Eighteen teachers completed a quantitative survey. Data were analyzed for codes and themes to solve the problem of high school seniors at Avenger Career Technology Center not meeting the requirement of South Carolina's Profile of a Graduate.

Keywords: multi methods, Career Technology Education, college and career readiness, Profile of a Graduate

Dedication

With great humility and a heart brimming with gratitude, I dedicate this dissertation to the most precious and cherished individuals in my life. To my family, I want to express my deepest love and appreciation for your unwavering support and inspiration on this incredible journey.

To my beloved wife, Helen, your unwavering commitment and the endless love you have shown me throughout this pursuit of knowledge has been my rock. Your ability to listen, understand, and stand by me in all my endeavors has been the wind beneath my wings. I couldn't have reached this point without your partnership and steadfastness. Your love sustains me, and I dedicate this dissertation to you with all my heart.

To my children, Brenton, Alexandria, and StellaRose, I want you to know that all things are possible. As you grow and face the world's challenges, never let fear hinder you from pursuing your dreams and goals. You are precious gifts from the Lord, and I love you without measure. Thank you for your patience and understanding as I pursued and completed this degree. You've been my greatest motivation.

To my parents, I am forever indebted to you for raising me to think independently. My dad's belief that I could achieve anything I set my mind to has been a guiding light throughout my life. Your encouragement and belief in my potential have brought me to this point. I am eternally grateful for the values and determination you instilled in me.

None of my accomplishments thus far would have been possible without my incredible siblings and the lasting influence of my late mother, Gwendolyn Anita Bonner. My mother had a unique way of teaching me to take responsibility for my dreams and not blame others for my

shortcomings. She left a legacy of life-changing moments, and her question, "What are you going to do about it?" has been a constant source of inspiration in all my endeavors.

Finally, I dedicate this work to the Lord God. Everything I have achieved, everything I am, and everything I do is a testament to His grace and guidance. None of this would have been possible without His divine presence in my life. I offer my deepest gratitude to God for His unwavering support and guidance.

In closing, this dedication is not just a few words on a page but a heartfelt expression of my love, appreciation, and gratitude to my family, parents, late mother, and the divine presence that has guided me. It is a reminder that our dreams are attainable, and we have the power to shape our destinies. Thank you for being a part of my journey, and I hope this dissertation honors the love, dedication, and inspiration you have all provided in my life.

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I am profoundly moved by the support and encouragement I have received from my esteemed chair, Dr. Pritchard, and the invaluable contributions of my dedicated participants. Their support and insights have not only enhanced the quality of my research but have also further fueled my passion for academic inquiry. I hope that my research stands as a testament to their unwavering support and the eloquent voices of those who participated in this endeavor. Thank you for being a part of this journey, and I am excited to share the results of our collective efforts.

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List of Abbreviations

Armed Services Vocational Aptitude Battery (ASVAB)

Avenger Career Technology Center (ACTC)

Every Student Success Act (ESSA)

Career Technology Education (CTE)

Certified Nursing Assistant (CNA)

College and Career Readiness (CCR)

Individuals with Disabilities Education Act (IDEA)

Workforce Innovation and Opportunity Act (WIOA)

CHAPTER ONE: INTRODUCTION

Overview

The purpose of this applied research study was to determine how the problem of seniors not meeting the requirement of South Carolina "Profile of a Graduate" mandate can be solved at the Avenger Career Technology Center (ACTC) in central South Carolina. According to the South Carolina State Report Card, 35% of ACTC diploma earners were college and career ready. The South Carolina Oversight Committee and SC Department of Education formulated two questions that would deem a diploma-earning student college and career ready: Did the student graduate college ready, and did the student graduate career ready? Students are considered "college ready" if they met one of the criteria that South Carolina sets. A student is deemed "career ready" if the student met another set of South Carolina criteria.

In the school district that includes the Avenger Career Technology Center, students performed below the state average in college and career benchmarks. To identify how to solve the lack of seniors meeting South Carolina's Profile of a Graduate mandate at Avenger Career Technology Center, a central question and three sub-questions were developed. The first question was, “How can the problem of an inadequate number of high school seniors that meet the requirement of South 'Carolina's "Profile of a Graduate" be solved at Avenger Career Technology Center?” The second question was, “How would administrators and teachers in an interview solve the problem of an inadequate number of high school seniors meeting the requirements of South Carolina's "Profile of a Graduate" at Avenger Career Technology Center?” The third question was, “How would counselors in a focus group solve the problem of an inadequate number of high school seniors meeting the requirements of South Carolina's "Profile of a Graduate" at Avenger Career Technology Center?” The last question was, “How

would the students, through quantitative student survey data, solve the problem of an inadequate number of high school seniors meeting the requirement of South Carolina's "Profile of a Graduate" at Avenger Career Technology Center?”

Chapter One provides the background of this study, including historical, theoretical, and social contexts. The problem to be addressed and the purpose of the study are discussed. The chapter will also introduce the research questions and the significance of the study. The chapter will conclude with a list of key terms used in the study with definitions germane to the research context.

Background

The Education Commission of the States (2019) found that in the 2017–2018 school year, 46 states and the District of Columbia planned to administer two or more types of college and career assessments to high school students, and South Carolina was among the states to do so. While the types of assessments vary by state, the SAT, ACT, and SC Ready are required for South Carolina students. Students in Grades three through eight take ACT Aspire. Students in Grade 11 take a college- and career-readiness assessment and ACT (Southern Regional Educational Board, 2014). Learners of today need to be able to take responsibility for their own continuing, lifelong learning. Policymakers have created this idea of a one-size-fits-all approach to school knowledge (Darling-Hammond et al., 2019). This mindset has been proven to be ill-adapted to individuals' needs and society's knowledge at large (Farrington, 2020).

Historical Context

Workforce data and political debate are frequently advanced to encourage career college readiness (CCR) reforms in policy and practice. High school graduation and employment path increasingly require postsecondary credentials (Carnevale et al., 2015). Secondary education

should prepare students to transition successfully to college and the workforce. The U.S. labor market demands highly educated and trained workers (Carnevale et al., 2016). The nation's economy increasingly relies on the quality of the human capital and the versatility to maintain its international strength (Alexander et al., 2015).

The Obama administration made CCR a primary educational policy goal in 2010. President Obama noted that "many countries led the United States in college completion rates, and he noted that if this trend continues, the countries that out-educate us today will out-compete us tomorrow" (U.S. Department of Education, 2010, p. 1). President Obama repeatedly emphasized the importance of access to higher quality education at an early age. The President also stated his commitment to redesigning high schools and partnering with colleges and employers who offer real-world education and hands-on training to lead to jobs and careers (Politico Staff, 2014). The Obama administration set a goal to create and support opportunities for every American to complete one or more years of higher education or advanced training by 2020 (Kanter et al., 2011).

In collaboration with the Chamber of Commerce in South Carolina, a group of superintendents formed a committee to create an initiative that will allow students to gain the skills needed to meet the demands of today's learners and workforce (South Carolina Education Oversight Committee, 2014). The Profile of a Graduate initiative has three overarching concepts. The first one is world-class knowledge. Students should be held to rigorous standards in language arts and math for career and college readiness. Students should know multiple languages, STEM, arts, and social sciences. Secondly, they should have world-class skills in creativity, innovation, critical thinking, problem-solving, collaboration, teamwork, communication, information, media, technology, and knowing how to learn. The last layer of the

South Carolina Graduate profile is life and career characteristics (S.C. Department of Employment & Workforce Business Intelligence Department, 2019). Under this umbrella, students should possess integrity, self-direction, a global perspective, perseverance, work ethic, and interpersonal skills (Transform SC, 2014). This model encapsulates the characteristics of a lifelong learner. Unfortunately, in practice, there remains a tendency for education to be assessed in terms of the achievements and targets that systems have set themselves rather than their more significant success in laying the groundwork for creating students who are lifelong learners. In addition, low student engagement is a barrier to student success. Student engagement is directly tied to students' motivation to learn. Sawyer (2006) discovered that most schools are not teaching in-depth knowledge that underlies knowledge work. Children retain material better when it is applied to real-world, social, and practical settings. Application and real-world concepts are embedded in a high-quality career technical education (CTE) curriculum across America. Unfortunately, CTE has been deemed as a place to go if a student's academic abilities are not college material.

Social Context

Historically, vocational education has been a stable form of education in European countries such as Germany and Finland but often comes with a stigma in the US, as many believe only low-performing and troublemaking students attend career campuses (Fitzgerald, 2018). Although college readiness is a policy priority, studies show that 28% to 40% of students enroll in a remedial course at least once during their college careers, with some studies documenting that more than half of all community college students enroll in at least one remedial course (National Conference of State Legislatures, 2013). Secondary schools' lack of preparation for students impacts the students' ability to obtain a postsecondary degree. According to a recent

Census Bureau Current Population Report, in 2018 approximately 72% of individuals between the ages of 25 and 34 in the United States earned a high school diploma or higher. Only 62%, however, went on to enroll in college, and only 31% successfully earned a bachelor's or higher degree (U.S. Census Bureau, 2012).

In the United States, 63% of occupations require postsecondary education for entry-level work (Lockard & Wolf, 2012). States are also highly invested in building and strengthening career pathways spanning high school, postsecondary education, and the workplace (Bottoms & Sundell, 2015; Council of Chief State School Officers, 2014; National Governors Association, 2014).

In central South Carolina, 22% of adults have a postsecondary degree, but 37% percent of jobs require some type of postsecondary education or training (Bureau of Labor Statistics, 2019). Central South Carolina District IX had 1,372 students enrolled in a CTE course in 2019 with only 147 students completing a career pathway. The National Research Center for Career and Technical Education (NRCCTE) analyzed data from the Education Longitudinal Study of 2002 and found that students who earned three or more credits in CTE were more likely to graduate from high school than students who earned fewer than three credits in CTE (Stone & Lewis, 2012). Similarly, Stone (2004) found that students identified as CTE concentrators (consisting of students committed to a CTE track) took more math courses and higher-level math courses than general concentrators (students committed to neither a CTE nor an academic track). Thus, CTE has become invaluable in equipping 21st-century learners with the skills needed to succeed in today's global economy.

Theoretical Context

A methodological assumption led to the construction of research on this topic. Methodological assumptions are characterized as inductive, emerging, and shaped by the researcher's experience in collecting and analyzing the data (Creswell & Poth, 2018).

This study was centered on the principles of constructivism, social constructivism, and experiential learning. The key to all these principles is the belief that learning occurs when students can experience meaningful activities in realistic settings with opportunities to process and reflect on what they learned and how the new knowledge relates to previous learning or experiences.

John Dewey believed that students should engage in real-world, practical workshops to demonstrate their understanding through creativity and collaboration (Brau, 2018). Dewey based new education on experience and exceptional educative experience rather than miseducative experiences, suggesting that good experience is branded by interaction and continuity (Johnson et al., 2012). John Dewey was a strong proponent for progressive educational reform. He believed in the principle of learning through doing. Dewey (1923) stated that young men and women must be prepared to be good citizens and members of communities with paper knowledge and a frame of mind about the source of power that must be applied to work. According to Dewey,

> We have passed the period when we can count upon general education, in the sense of reading, writing . . . to give the kind of intelligence needed in our everyday very complicated situations. We must get more substantial and vital knowledge to our students of the issues that they are going to meet. (p. 84)

Dewey agreed with traditionalists that education should develop thinking skills. However, thinking skills mean restructuring experiences, not developing immutable truths that govern the universe (Johnson et al., 2012). Dewey also believed that educators would need to be aware of the enthusiasm for vocational education, which could produce a kind of belief in the social destination where a person would be assigned a place in society by their teachers or schools (Dewey, 1923). In the 1950s, a theory that students should follow separate educational tracks according to ability emerged. By the end of the 1950s, the learners not college-bound were channeled into a remedial track known as vocational education (Wyman, 2015). However, Dewey (1923) did not indicate that education should be exclusively vocational. Dewey intended that public education should not lose sight that every person will have calling either in or out of the home; thus, education should offer options for students to follow these callings. Dewey envisioned a community of thoughtful experimentalists–people working together, trying things out, evaluating, and sorting through the possibilities (Noddings, 2012). According to Dewey (1923), education aims to teach young men and women to become good citizens and support themselves. Accordingly, Dewey emphasized the need to focus more on students' actual learning experience and the continuity and interaction that provide educative significance and value (Noddings, 2012). Finally, Dewey (2004/1934, 1937) stated that education aims to develop individuals to the utmost of their potential. Unless education has some unified objective, it is bound to be aimless. Dewey believed that there are three choices that education can take: it can go on dwelling in the past; it can set ideal pictures for the future and strive to educate based on that picture; or it can strive through schools to make pupils vividly and intensely aware of the kind of social world in which they are living (Dewey, 2004/1934).

Problem Statement

The problem was an inadequate number of high school seniors at Avenger Career Technology Center meet the requirement of South Carolina's Profile of a Graduate. Key insights from the science of learning and development are that the brain and the development of intelligence and capacities are malleable, and the "development of the brain is an experience-dependent process" (Cantor et al., 2018, p. 3). High school graduates of the 21st century need a conceptual understanding of complex concepts, and they need to understand how to creatively generate new ideas, theories, products, and knowledge (Szczesiul et al., 2015). Students need to think critically to evaluate what they read and express themselves clearly, both verbally and in writing, and understand scientific and mathematical thinking. According to Conley (2010), the Education Commission of the States (2014), and Strayhorn (2014), students need to develop these skills to compete in the future workforce. Thus, college and career readiness (CCR) are essential to students who live in South Carolina (South Carolina Education Oversight Committee, 2014).

Purpose Statement

The purpose of this applied study was to solve the problem of the inadequate number of high school seniors at Avenger Career Technology Center that meet the requirement of South Carolina's Profile of a Graduate. A mixed-methods design was used, consisting of both qualitative and quantitative approaches. The first approach was structured interviews with administrators, the second approach was to conduct focus groups using prepared questions and field notes from students, and the third approach used a Likert-scale, quantitative survey data from teachers to inform the solution to the problem of graduating students that are college and career ready by South Carolina standards in Anderson, South Carolina.

Significance of the Study

The results of this study will be useful for Avenger administrators, teachers, students, counselors, and district leadership. Data given will provide Avenger administrators with information on best practices and how to support the implementation of South Carolina's Profile of Graduate characteristics into the CTE curriculum. The results will enable the administration team to improve scheduling for students ready to take postsecondary courses while still in high school. The study results will also help teachers evaluate their instruction quality and evaluate students' academic performance, attitude, and skills acquired concerning South Carolina's Profile of a Graduate. The results of this study provide insight into academic performance, students' attitudes and approaches, and the skills learned while attending ACTC pathways. Data gathered will also help the students improve both academic and social performance and will assist the district in the development of CTE education for all students. This study will foster new ways of enhancing knowledge, skills, and attitude, thus preparing a globally competitive student in the future and will also help advance secondary and postsecondary articulations agreements of a program of study related to creating a seamless transition for secondary students in Anderson, South Carolina.

The study aimed to solve the lack of meeting South Carolina's mandated “Profile of a Graduate” at Avenger Career Technology Center. A mixed-methods approach was appropriate for this study because the researcher collected and analyzed data from interviews, focus groups, and a student survey. The data collected allowed the researcher to integrate the findings and draw inferences using qualitative and quantitative approaches (Regnault et al., 2018). The applied research approach was valid for this study as it allowed the researcher to interview participants, conduct a focus group, disseminate surveys, and ask participants for clarity on any questions that

arose during data analysis.

Research Questions

Central Question: How can the problem of the inadequate number of high school seniors at Avenger Career Technology Center that meet the requirement of South Carolina's Profile of a Graduate be solved?

Sub-question 1: How would administrators in an interview solve the problem of the inadequate number of high school seniors that meet the requirement of South Carolina's "Profile of a Graduate" be solved at Avenger Career Technology Center?

Sub-question 2: How would students in a focus group solve the problem of the inadequate number of high school seniors that meet the requirement of South Carolina's "Profile of a Graduate" be solved at Avenger Career Technology Center?

Sub-question 3: How would quantitative teacher survey data inform the problem of the inadequate number of high school seniors that the requirement of South Carolina's "Profile of a Graduate" at Avenger Career Technology Center?

Definitions

1. *Career and Technical Education (CTE)* – Career and technical education is the practice of teaching specific career skills to students in middle school, high school, and postsecondary institutions (ACTE Issue Brief: Stem, June).
2. *Career and College Readiness* (CCR) – Career and college readiness is a student who possesses the knowledge and skills needed to enroll and succeed in credit-bearing, first-year courses in a two- or four-year college, trade school, or technical school without the need for remediation and possesses the ability to apply core academic skills to real-world situations through collaboration with peers in problem solving, utilizing precision and

punctuality in the delivery of a product, and demonstrating the desire to be a life-long learner (SREB, 2020).

3. *Constructivism* – Constructivism is an approach to teaching and learning based on the premise that cognition (learning) is the result of mental construction (Olusegun, 2015).
4. *Experiential Learning* – Experiential learning is the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience (Kolb & Kolb, 2012).
5. *Social Constructivism* – Social constructivism is a sociological theory of knowledge according to which human development is socially situated and knowledge is constructed through interaction with others (Vygotsky, 1978).
6. *Social and Emotional Learning (SEL)* – Social and emotional learning is the processes through which students and adults acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage emotions, set, and achieve positive goals, feel, and show empathy for others, establish, and maintain positive relationships, and make responsible decisions (Durlak et al., 2011).

Summary

The problem prompting this applied study was the inadequate number of high school seniors at Avenger Career Technology Center that meet the requirement of South Carolina's Profile of a Graduate. The purpose of this study was to find a solution to solve this problem through interviews, a focus group, and a survey of stakeholders in the organization. Key insights from the science of learning and development are that the brain and the development of intelligence and capacities are malleable, and the "development of the brain is an experience-dependent process" (Cantor et al., 2018, p.5). High school graduates of the 21st century need a

conceptual understanding of complex concepts while working with them creatively to generate new ideas, theories, products, and knowledge (Szczesiul et al., 2015). Students need to think critically to evaluate what they read and express themselves clearly, both verbally and in writing, and understand scientific and mathematical thinking. According to Conley (2010), the Education Commission of the States (2014), and Strayhorn (2014), students need to develop the strategies listed above to compete in the future workforce. College and career readiness (CCR) are essential to students who live in South Carolina (South Carolina Education Oversight Committee, 2014).

Students who attend the Avenger Technology Center Campus will be expected to be college and career ready (CCR) by graduation. CCR is relatively new for the centers in the State of South Carolina, and the lack of students achieving the "Profile of a Graduate" mandate is a problem for career centers throughout the state. This research addressed the issue of students not meeting the mandate upon graduation.

CHAPTER TWO: LITERATURE REVIEW

Overview

The purpose of this applied study was to investigate how the Avenger Career Technology Center can improve students' ability to meet South Carolina's Profile of a Graduate mandate. The problem was that a low percentage of seniors in the district meet South Carolina's Profile of a Graduate mandate by the time they graduate high school. In 2018, 35.3% of the seniors who earned a diploma were college and career ready. Out of those students, 27.4% scored 1020 or higher on the SAT. Only 3.6% of seniors that completed CTE earned a certification.

In comparison, 1.6% of the students completed a state-approved, work-based learning experience, and 58.1% received a platinum, gold, or silver certificate on the career readiness assessment. Only 2.5% of seniors who took the ASVAB scored 31 or higher (SC School Report Card, 2018). The literature review begins with the theoretical framework that guided the study. An advanced, electronic search of Liberty University's library was performed for relevant literature. Liberty University's library uses multidisciplinary databases such as JSTOR, ERIC, ProQuest Central, and Education Research Complete. Specific topics such as CTE helping students meet state mandates, literacy in CTE, social and emotional learning in CTE were investigated. Several criteria were used to help narrow the selection.

All articles presented in this literature review are peer-reviewed studies to ensure scholarly significance. Most articles were published in the last five to ten years to ensure that the most recent information relevant to improving students' ability to meet college and career readiness at Avenger Technology Career Center was presented.

Theoretical Framework

A methodological assumption led to the construction of research on this topic. Methodological assumptions are characterized as inductive, emerging, and shaped by the researcher's experience collecting and analyzing the data (Creswell & Poth, 2018). This study was centered on the principles of constructivism, social constructivism, and experiential learning. Key to all these principles is the belief that learning occurs when students can experience meaningful activities in realistic settings with opportunities to process and reflect on what they learned and how the new knowledge relates to previous learning or experiences.

Constructivist Theory

Constructivist theorists encourage learner-centered principles, where learners work collaboratively in the classroom environment. Scholars like Jony (2016) and Mentz and Van Zyl (2018) defined constructivism as learning that is constructing meaning; it is how learners make sense of their experience. Mayombe (2020) pointed out that adult learners benefit from constructivism because they come to class with many life experiences. According to Bada (2015), the constructivist theory of learning has its historical roots in the work of Dewey (1929), Vygotsky (1962), and Piaget (1980).

Constructivism

The three foundational psychologists of constructivism are Jean Piaget, Lev Vygotsky, and John Dewey. Vygotsky's work is mainly tied to the social aspects of learning through experiences, while John Dewey's ideas are like Piaget's and Vygotsky's work (Brau, 2018). Constructivist theory suggests that knowledge is best gained through reflection and active construction in the mind (Mascolo & Fischer, 2005). An early constructivist, John Dewey, believed that children are led to experimentation when engaged in activities and interest in their

environment (Beckett, 2018). According to Gutrek (2011), when children are curious about their environment, they are eager to explore it.

Piaget's theory explores how children develop and identified two processes on how learning occurs rather than what influences learning: accommodation and assimilation. Accommodation is the reframing of one's mental representation of the external world to fit new experiences and assimilation is the process by which a person or persons acquire the social and psychological characteristics of a group. Both processes are vital in the interaction between experiences and ideas (Brau, 2018).

John Dewey's (1916) writings in *Democracy and Education* explore the idea that schools are a critical method of transmitting education, forming the young children's dispositions. Still, it was only one means, compared with other agencies, and formed only a somewhat shallow center. Dewey also believed that there must be a balance between formal and informal education to impact social temperament. Dewey (1917) formed his thoughts on education as a necessity of life in three areas: transmission of knowledge, education, communication, and the place for formal training.

Social Constructivism

Lev Vygotsky's work suggests that one learns best through interacting with others (Brau, 2018). In other words, when students are interacting with each other, their mental abilities are shaped. Vygotsky believed that thinking has an origin, and that cognitive development cannot be understood without reference to the social context from where it started (Allman, 2018). According to this view, learning is shaped by factors within the learning environment and learners' thoughts and self-beliefs. Bandura (2001) stated that learners can monitor, control, and change the learning environment and their behavior purposefully according to predefined goals

(Brau, 2018). According to Brau (2018), learners are expected to take the information being taught and interpret it. According to Dewey (1916), this interpretation is based on the learner's past experiences, personal views, and cultural background. Bentley and Seiben's (2019) research suggested that children do not have the required knowledge to complete a task when learners attempt to solve a problem. The learners draw on all the resources within their long-term memory, frantically trying to process information and grasping at any associations, no matter how weak, vainly trying to solve the problem. They lack the vital required knowledge and are often overwhelmed and do not have the cognitive capacity to problem solve as their cognitive resources are depleted. They are in cognitive overload.

Jony (2016) described the teacher's role in social constructivist theory as a facilitator who guides and encourages the learners toward the group work and facilitates their activities. Correspondingly, Fidan and Duman (2014) and Maheshwari and Thomas (2017) noted that the constructivist theory of teaching is based on the assumption that learners and teachers are not two sides in the learning process but represent a team that cooperates towards achieving a common goal by overcoming the barriers in the learning process. An instructor's role in a social constructivist approach is more hands-on than a traditional-style lecture (Bauersfeld, 1995). In the 20th century, teachers were masters of content knowledge and memorization of facts and important dates. In the 21st century, modern teachers still need content expertise but must find the balance between teaching content and facilitating learning (Chavez et al., 2014). An instructor in a CTE classroom should deliver lessons to help the learner understand the content instead of solely explaining a principle. A sociological study of teachers by Lortie (1977) described how the process of being a student-participant in classrooms for the better part of one's life powerfully shapes perceptions of what a teacher is and what teachers should embody.

Dewey (1916) defined education as the means of social continuity of life. The transmission of knowledge from the adults/teachers to the young of a group creates a society or social group that determines education's necessity. Dewey believed that the young must not be merely physically preserved but also be initiated into the interest, purposes, information, skill, and practices of the adult members/teachers to gain society's characteristics. However, the growth and mastery of education essentials of the young will not reproduce what society needs. A deliberate effort and the pain of trial and error are necessities to reproduce a particular group's life. Sundell et al. (2017) translated these skills that young/students need to navigate today's society: core academics, employability, and technical skills.

Experiential Learning Theory

Teaching and learning are a way of communication that forms the young's character, but school is only one primary method (Dewey, 1916). Experiential learning suggests that students will learn from doing or engaging in a direct experience with an activity. Haltinner (2012) found that experiential learning theory is applied through career and technical classroom practice. Students in the CTE classrooms are involved in work-based learning and projected-based activities. Communication that drives participation secures similar emotional and intellectual characteristics. When students are assigned a project that requires a group to reach a consensus, it demands communication. Dewey (1916) indicated that students then have an enlarged and changed experience for humans to be a communication recipient. When students have an experience that moves them beyond the traditional way of learning, it allows them to appreciate the meaning of the experience.

The process of education today is that of direct instruction or schooling. Dewey (1916) did not observe this kind of delivery of teaching in undeveloped social groups and saw minimal

formal teaching and training in amorphous social groups. Dewey (1916) labeled that savage groups mainly instilled needed characteristics into the young upon the association, keeping adults loyal to their group. Aboriginal groups hinge on the children learning the adults' duties while acquiring the emotional set and standard of ideas by sharing what the elders were doing and learning best when they have hands-on experiences in society (Dewey, 1916). Experiential learning suggests that an individual will learn from doing or partaking in an activity's direct experience (Gross et al., 2017). Drawing from John Dewey's ideas, Kolb and Kolb (2005) popularized the experiential learning theory and the idea that an individual will learn best by doing. Haltinner (2012) explained, "Engaging students by applying theory to practice is a cornerstone of career and technical education" (p. 50). CTE programs represent experiential learning theory, where students are involved in project-based and work-based learning activities. Work-based learning can include school-based enterprises, career-related internships, field-associated apprenticeships, and correlated volunteer opportunities that provide a hands-on approach to learning by doing. Kolb (1984) described experiential learning as a four-part process. The learner was asked to engage in a new experience, actively reflect on that experience, conceptualize that experience, and integrate it with past experiences. Furthermore, students must make decisions based on their created concepts (Filimowicz & Tzankova, 2017). Kolb's (1984) model proposed that students apply prior knowledge within a real-world, hands-on setting.

Related Literature

CTE provides an essential pathway to success for high school students and offers each student opportunities to personalize their education based on their career interests and unique learning needs. CTE refers to courses and programs designed to prepare students for careers in

current or emerging professions (Carl D. Perkins Vocational and Applied Technology Education Act, 2006). CTE provides students with opportunities to explore a career area of interest at the high school level while learning a set of technical and employability skills that integrate into or complement their academic studies. High school CTE is meant to connect with and lead to postsecondary programs of study or additional training after high school, including more specialized technical instruction. These pathways can culminate in postsecondary degrees or certificates, apprenticeships, or employment (Castellano et al., 2017). The subject areas most commonly associated with CTE are agriculture (jobs related to food and fiber production and agribusiness); business (accounting, business administration, management, information technology, and entrepreneurship); family and consumer sciences (culinary arts, leadership and life skills); health occupations (nursing, dental, and medical technicians); marketing (management, entrepreneurship, merchandising and retail); technology (production, communication, and transportation systems); and trade and industrial (skilled trades such as automotive technician, carpenter, and computer numerical control technician).

Richardson et al. (2016) recently reviewed evidence suggesting that learning in context is more consistent with adolescents' attentional and motivational biases for learning through exploration, storytelling, and apprenticeship-like pedagogy. Jang (2016) suggested apprenticeship-like pedagogy outreach may give students self-direction, which drives motivation. Vennix et al. (2017) found that students' motivation during outreach activities and attitudes towards the social implications of STEM and future career intentions was very positive. Adding outreach activities to the curriculum would thus potentially add value for a student's intrinsic motivation. Black and Deci (2000), Jang (2016), and Lavigne et al. (2007) argued that STEM activities, assuming more positive perceptions of the learning environment elements,

would also lead to higher perceived satisfaction of the three needs, relatedness, autonomy, and competence. Kriner et al. (2015) called this invested learning when describing students in an adult education doctoral program learning content, including research methodologies, and developing identities as scholars.

Mayombe et al. (2020) studied adult learners' perceptions of constructivist principles in teaching and learning in non-formal education centers in South Africa. The findings revealed that facilitators used constructivist theory when teaching adults in non-formal education centers in KwaZulu-Natalthat, South Africa. Shared learning through questioning and discussions between teachers and learners in the classrooms or workshops helped them share their knowledge, skills, and experience. Maheshwari and Thomas (2017) argued that discussions help learners share their expertise acquired from their communities before enrolling in the training courses. Adults were engaged in collaborative learning within groups for classroom activities or work projects assigned by teachers. Pai and Mallya (2016) viewed collaborative learning as an approach that entails peer exchanges of ideas and skills among learners. Content delivery was primarily used in the private centers in discussions and problem-solving learning in the classrooms or workshops, while the topics related to their needs, objectives, and interests. The learner-centered principle helped the learners to focus on unlimited potential for their development and actively participate in the learning process. Teaching and learning approaches were authentic because teachers linked lesson contents to learners' prior experience by using workshops and field trip activities. Jony (2016) defined this experience as learner-centered learning as an instructional technique in which learners influence the content, activities, materials, and pace of learning. Pai and Mallya (2016) argued that learners might choose what to learn and how and why that topic might be interesting to know in a learner-centered approach.

Weingarten's (2014) reflection on her experience teaching social studies to health professionals in a CTE school echoed the same sentiment. While reflecting, she started looking at the students' body language and facial expressions, which prompted her to change how she taught. Weingarten (2014) wanted to develop a course that would allow students to engage their minds and hands.

Studies have shown that students living in poverty and at risk for dropping out can benefit from CTE (Ricks, 2014). It could provide increased opportunities for students to finish school equipped with marketable skills and choose whether to go to college or start a job earning a living wage or both. Schooling becomes less mundane, and education surfaces as purposeful when learning is aligned with students' interests, especially with good teaching (Jocson, 2018).

Foundations of Career and Technical Education

In the 19th century, CTE began as vocational education in Europe in response to the demand for skilled workers educated in industrialized professions. European elites wanted their children to receive both an education and certification in skills while attending secondary school. European elites also wanted their children to gain access to law and theology positions as well. Middle-class parents wanted their children to attain the necessary educational credentials to enter civil service or managerial positions (Benavot, 1983). In 1917, the Smith-Hughes Act was passed in the United States. The Smith-Hughes Act initiated federal funding for CTE (Bailey, 2010). Over the next 65 years, due to four modifications to the act in 1947, 1958, 1963, and 1968, CTE funding increased. The Smith Hughes act expanded CTE programs to improve science, math, and foreign languages for secondary students. It offered support for technical occupations related to national defense, and CTE began to include work-study programs. In 1968, a National Advisory Council on Vocational Education was initiated to collect information about vocational

education programs and students' progress and development (Browder et al., 2007).

Federal Legislation

Dortch (2012) summarized the vocational act later called the Carl C. Perkins Vocational Education Act 1984. While continuing federal support for vocational education, Dortch established programs emphasizing job skills acquisition through vocational and technical education. Browder et al. (2007) suggested that the Carl D. Perkins Act also sought to make vocational education programs accessible to special populations, including individuals with disabilities, disadvantaged individuals, single parents and homemakers, and incarcerated individuals.

In the 1990s, federal legislation approving funding for secondary vocational education, increasingly called CTE, began to order accountability requirements such as enriched academic achievement. These requests have necessitated a search for ways to integrate CTE into broader school reforms that have improved student achievement as their goal (Castellano et al., 2003).

The 2006 revision of Perkins legislation established an accountability system to coincide with the No Child Left Behind criteria mandated for public education in the United States (Wallace, 2012). These new accountability measures forced a greater need for research on how students perceive CTE. The standards also help discover additional methods for recruiting new students and drawing more considerable attention from parents who steer their children toward a more college prep, academically focused course load (Gibbs, 2016).

The United States has made a big push to have schools that emphasize career-focused, work-based learning and provide career exploration as a high school education (American Recovery and Reinvestment Act [ARRA], 2009). These movements have been decelerated by federal law and pressure on states and districts to be flexible with the money to make academic

improvements. National CTE policy has continually developed and answered changing economic and social needs while integrating policy flexibility that has led to variation in program implementation on state and local levels (Harvey et al., 2019). CTE continues to evolve with legislation and the country's needs. Still, school districts see likenesses reemerge from previous policies. For example, more training is needed to directly provide employment places that shared the same vision as the early 1936 Roosevelt study. Darling-Hammond (2013) pointed out that vocational education, today known as CTE, has been a topic of interest for education. In recent years, the workforce experts and advocates for CTE have also captured the media's attention. However, both entities have been muted from policymakers' podiums during speeches and Congressional hearings and therefore have been driven from lawmaking priorities at state and local levels.

Harvey et al. (2019) summarized three key legislation pieces that have given students with disabilities access to CTE. The critical pieces of legislation have forced collaboration between postsecondary and secondary students with disabilities.

Individuals with Disabilities Education Act

The Individuals with Disabilities Education Act (IDEA) of 2004 requires secondary schools to provide transition services to students with disabilities over 16 years of age and below in their IEPs, when necessary, which specify postsecondary goals suitable for education and training, employment, and (if applicable) independent life skills. Postsecondary goals are based on the student's individual needs, strengths, interests, and preferences. IDEA Federal regulations define transition services as a “coordinated set of activities for a child with a disability that is a results-oriented process and meets academic and functional needs” (§300.43).

The Workforce Innovation and Opportunity Act (WIOA)

The Workforce Innovation and Opportunity Act (WIOA, 2014) supports workforce development for students with disabilities. Through Title I, all in- and out-of-school youth have access to financed youth activities and services as part of job preparation and career growth (Cushing et al., 2017). WIOA services focus on the local community, sometimes regional in-demand jobs, associated occupational skill training, and high school completion. CTE program pathways include job exploration, work-based learning experiences, counseling, workplace readiness training, and self-efficacy skills resulting from Workforce Innovation and Opportunity Act. Harvey et al. (2019) referenced that WIOA assists students with disabilities in gaining skills for success in the 21st-century job market that local employers require. Group effort among agencies and educational entities is a significant part of the legislation, primarily related to secondary CTE and students with disabilities (Advance CTE, 2018).

Every Student Succeeds Act (ESSA)

Current educational reform efforts, specifically the Every Student Success Act (ESSA), have addressed college and career readiness (CCR) in American public education with the clear focus that all students, including those with disabilities, be equipped for postsecondary and careers after high school (ESSA, 2015; Carl D. Perkins Act Vocational and Applied Technology Education Act, 2006; Harvey et al., 2019). ESSA's most current reauthorization (U.S. Department of Education, 2015) mandated states to develop rigorous College and Career Readiness Standards and required states to develop student success indicators (Advance CTE, 2017). Cushing et al. (2017) wrote that the mandate had led the way for many states to include in their ESSA accountability systems and college and career readiness indicators that may measure secondary CTE program completion, credential attainment, and work-based learning. These

indicators are all critical transition services to support students with disabilities as they prepare for post-school success.

ESSA provides states “an opportunity to develop a more coherent college and career readiness approach” (Tomasello & Brand, 2018, p. 1) in their state ESSA plans. ESSA legislation provides incentives for the synchronization of services for students with disabilities. IDEA provides secondary students with disabilities, where appropriate, the option to participate in CTE as part of secondary general education (34 CFR §300.39). Strengthening Career and Technical Education for the 21st Century Act (2018), referred to as Perkins V, supports secondary CTE as a transition service for students with disabilities by requiring those special populations in CTE to be equipped for employment in related occupations and postsecondary education. Secondary CTE is one pathway for students with disabilities to get college and career-ready for 21st-century jobs (Dieterich & Smith, 2015). The goals of and definitions within IDEA and Perkins V (2018) also align with ESSA and WIOA. Legislation is in place to support partnerships among secondary CTE, special education, and VR transition professionals. Such collaborative efforts are not commonplace in transition practice and should be more fully developed (Povenmire-Kirk et al., 2015).

The Strengthening Career and Technical Education for the 21st Century Act (2018), referred to as Perkins V, continues its emphasis on developing career and college readiness in secondary, postsecondary, and adult students, including students with disabilities (Harvey et al., 2019). One of the law's purposes is “increasing the employment opportunities for populations who are chronically unemployed or underemployed, including individuals with disabilities” (PL 115-224—H.R. 2353).

The provisions throughout the law that specifically affect students with disabilities

are demonstrated in the following items (Harvey et al., 2019):

- State leadership funds are raised two percent to support individuals in-state institutions such as correctional and juvenile justice facilities or institutions for students with disabilities. Funds have been added, requiring states to spend money on special populations in the CTE application process.
- Local entities must complete a comprehensive local needs assessment that includes an access and equity gap analysis for special populations, including students with disabilities. Local applicants must also evaluate their ability to prepare special populations for high-skill, high-wage, or in-demand industry sectors or occupations in competitive, integrated settings that will lead to self-sufficiency.
- Local Perkins grant recipients can use funds to coordinate with other education and workforce development programs and initiatives, including career pathways and sector partnerships developed under WIOA and transition-related services aligned with IDEA.
- The legislation allows educators to receive professional development related to students with disabilities.

Programs of Study as a State Policy Mandate

Perkins Collaborative Resource Network (2019) gives the federal definition of the term program of study as a coordinated, no repetitive sequence of academic and technical content at the secondary and postsecondary level that (a) incorporates challenging state academic standards, including those adopted by a State under section 1111(b)(1) of the Elementary and Secondary Education Act of 1965; (b) address both academic and technical knowledge and skills, including employability skills; (c) is aligned with the needs of industries in the economy of the State, region, Tribal community, or local area; (d) progresses in specificity (beginning with all aspects

of an industry or career cluster and leading to more occupation-specific instruction); (e) has multiple entries and exit points that incorporate credentialing; and (f) culminates in the attainment of a recognized postsecondary credential. South Carolina uses the federal definition as a guide to prepare its students for college and career-readiness when they graduate high school.

The U.S. Association of Career and Technical Education's definition of college and career readiness consists of students with core academic, employability, and technical skills (Castellano et al., 2017). Pittance's (2014) study found that high-quality CTE curriculum and assessments support and reflect more in-depth learning skills at both the state and local levels, including critical thinking, problem-solving, communication, collaboration, creativity, and the ability to learn. Career and technology pathway systems support the development of social-emotional skills that colleges and employers recognize as significant. South Carolina's Profile of a Graduate outlines the importance of students' abilities, such as collaboration, resilience, perseverance, and an academic growth mindset. The Profile of a Graduate mandate includes complex extended tasks requiring students to learn how to work with others, take and use feedback effectively, solve problems creatively, and persevere in the face of ambiguity and challenges (Young, 2017).

CCR is a priority at the national and South Carolina levels (South Carolina Education Oversight Committee, 2014). Despite formerly not having a definition for CCR, South Carolina Superintendents and SC Chamber of Commerce approved an initiative called Profile of the South Carolina Graduate (Young et al., 2017). Under this initiative, a South Carolina graduate demonstrates:

> A world-class knowledge (rigorous standards in language arts and math for career and college readiness, multiple languages, science, technology, engineering, mathematics (STEM), arts and social sciences); world-class skills (creativity and innovation; critical thinking and problem-solving; collaboration and teamwork; communication, information, media, and technology; knowing how to learn); and life and career characteristics (integrity, self-direction, global perspective, perseverance, work ethic, and interpersonal skills). (South Carolina Education Oversite Committee [SC EOC], 2015 p. 4)

Education for the 21st-Century Labor Market

Changes in today's globalized society have shifted the skill demands from acquiring structured knowledge to mastery of skills, often referred to as 21st-century competencies (Barak, 2017). However, new practices are not easily implemented, and many teachers still practice teacher-centered and lecture-based instruction (Barak, 2014; Bell et al., 2013). According to Ertmer and Newby (1993), there is a need for instructional design to bridge the gap between learning research and educational practices. To meet this need, Dweck (2009) studied growth and fixed mindset.

Dweck (2009) stated that in today's world, memorization of facts and procedures is not enough for students to successfully meet the high demand for skilled workers of the 21st century. Dweck (2009) discussed that these students need a conceptual understanding of complex concepts and work with students creatively to generate new ideas, theories, products, and knowledge. Students need to think critically to evaluate what they read; express themselves clearly, verbally, and in writing; and understand scientific and mathematical thinking (Sawyer,

2018). Dweck (2009) also stated that students of this century will need to own their learning and take responsibility for their continuing, lifelong education.

Interpersonal Skills

Deming (2015) found that active listening is the most vital skill sought by employers today. Active listening aligns with Deming's (2015) finding that social skills are increasingly valued in the labor market. Social, employability, and work-readiness skills manifest from various behavioral, attitudinal, and character traits. Stone (2014) emphasized that these character traits are valued in the workplace and society. The future workplace will also need new technical content to ensure that students are prepared for the tasks that await them. The critical realization is that technical skills alone, even when combined with academic skills, are insufficient preparation for the future. The future will reward those who possess a tool kit of relevant skills certified by credentials and the social, emotional, and behavioral attributes demanded by the workforce's social context (Castellano et al., 2017).

Skilled Labor

Skilled labor in many occupational sectors is strong and growing. However, not all high school students desire to succeed in academic coursework at the college level. Stone (2005) suggested that a better strategy would be to receive training and preparation during high school before entering a career with decent wages and opportunities to advance.

The evidence has shown that work experience has helped prepare people from low-income areas, particularly in impoverished neighborhoods, to enter the job market. Kazis (2005) found that the value of high school career-focused education includes CTE both as traditionally conceived and with more recent innovations such as school-to-work, work-based learning, career

academies, High Schools That Work, and other models of schools, programs, and instructional practices that put careers and occupation-oriented knowledge at the center of education.

Stone et al. (2017) identified two sets of skills that employers look for in a prospective worker. The first is work readiness skills. Workers can communicate and navigate a workplace relationship or often the most disagreeable skills in employer survey (Emsi, 2019). Stone et al. referenced Fischer's (2013) work that found recent college graduates lack necessary workplace competencies such as adaptability, community skills, and the ability to solve complex problems. The second group of skills included character traits such as persistence, dependability, self-control, curiosity, diligence, grit, and self-confidence; these skills need more than sheer brainpower to accomplish success in the workplace (Stone et al., 2017).

Anderson Work-Ready Community

South Carolina set a vision to develop a ready workforce that would attract and maintain businesses in the state. The state set a progressive goal to join education and workforce development and align with each community's economic development needs (ACT, 2018). South Carolina's plan has three primary elements: matching job openings with job seekers, creating an inventory of skill users, and taking a locally driven approach. South Carolina's effort to become a work-ready state was more coordinated and structured, allowing the state to maximize workforce and economic development efforts to meet employers' current and potential needs. South Carolina was already being used as part of the training program for new and expanding industries (ACT, 2018)

As a result of South Carolina's vision, Anderson County became certified by ACT as a work-ready community in 2014. Anderson, Oconee, and Pickens County joined Tri-County Technical College to develop a dependable pipeline for their region's manufacturing jobs. The

immediate challenge for Anderson County was to ensure a skilled workforce for manufacturing job growth in the area was trained. Local projections for the workforce show that manufacturing sector jobs will grow by 6.2% by 2028. The local industries need skilled middle workers to fill these jobs (ACT, 2018). According to Trent Ackey, executive director of Worklink, "The tri-county regional workforce development team has created a successful manufacturing workforce training program by leveraging the ACT NCRC and the MSSC industry-valued credential, helping us place job seekers into good manufacturing jobs in our region" (ACT, 2018, p. 3). To help mitigate the lack of skilled workers, Tri-County Technical College partnered with local secondary school districts to create Technical Career Pathways. The dual enrollment program gives secondary students a seamless pathway to college to continue building the skills employees need for those jobs.

According to the Work Link Service Region report, the Anderson Region had 145,107 jobs in 2018. By 2028, that number is projected to increase by 8%, equivalent to 11,970 new jobs (Emsi, 2019). The fast-growing Anderson-Greenville metropolitan area drives the region's strong economy with a projected 6% growth rate between 2019 and 2029 (Emsi, 2019). The high concentration of manufacturing, educational, and healthcare-related industries provide a substantial, competitive advantage for the region. It accounts for almost 50% (23,292) of the total jobs from the 10 largest industry subsectors (Emsi, 2019). Nearly all the major occupational clusters are projected to grow between 2018 and 2028. The fastest-growing occupational groups in the region are business, information technology, STEM, health care, and human and public services (Emsi, 2019). The top 10 occupations include retail sales workers (9,380); food and beverage serving workers (8,556); assemblers and fabricators (5,673); metal workers and plastic workers (5,449); health diagnosing and treating practitioners (5,074); construction trades workers

(4,868); preschool, primary, secondary, and special education teachers (4,571); information and record clerks (4,427); material moving workers (4,163); and other installation, maintenance, and repair occupations (Emsi, 2019). Secondary schools and technology centers in the region offer students opportunities to complete programs and coursework related to most top occupational groups, with many programs linking to postsecondary programs (Emsi, 2019).

Survey results of area high school parents and students (N = 5,318) indicated that among CTE and non-CTE respondents alike, around 50% plan to attend a four-year college the first year after high school. Another 22% of respondents plan to attend a two-year college, with more than primary 24 occupational groups. Only production jobs are projected to slightly decline but will remain the largest group in total employment (Emsi, 2019). Despite historic lows in unemployment, ongoing challenges related to poverty represent one of the most significant hurdles to promoting residents' economic mobility. Poverty rates overall range between 15% and 18% across the three counties. Within the region, specific subpopulations and locals experience more enormous challenges.

A refinement of skills and competency mapping to industry needs was required within all program pathways offered on the secondary level. To support opportunities in sustainable occupations instead of merely providing access to jobs, valid calibration requires responsive feedback systems, adaptable curriculum, and flexible faculty. An analysis of the job skills gap between employer needs and candidate preparation indicates that employers increasingly emphasize the need for soft skills across a wide range of industries (Emsi, 2019). Survey results from area employers complement this finding in addition to similar job postings and requirements for relevant pathway occupations (Emsi, 2019).

Program-related placement rates are high across most CTE programs from Tri-County completers (Emsi, 2019). The Health Science, Human and Public Service cluster includes programs and courses related to health science, hospitality, tourism, human services, law, public safety, corrections, and security (Emsi, 2019). Emsi's (2018) gap analysis found that secondary student enrollment in health and public service-related programs and course offerings at Tri-County Tech continue to rise. In 2019-2020, these programs accounted for 25% (4,032) of all secondary CTE enrollments. The popularity of this cluster was mirrored in the survey results of area high school parents and students, which showed that, on average, between 80%-90% of respondents by cluster are "somewhat satisfied" or "completely satisfied" with the pathway they are pursuing (Emsi, 2019). The secondary to postsecondary pathways for this meta-cluster includes preparation for more than 28 occupations, with 10 identified by the State Skills Gap Summary, including social and human service assistants, registered nurses, clinical laboratory technologists, technicians, dental hygienists, emergency medical technicians, paramedics, licensed practical and licensed vocational nurses, home health aides, nursing assistants, dental assistants, and phlebotomists (Emsi, 2019).

Secondary and postsecondary student enrollment was lower than the anticipated demand for trained personnel in many healthcare careers highlighted by the South Carolina Talent Supply Gap assessment (Emsi, 2019). Enrollment in five out of nine postsecondary programs that are part of this pathway has experienced a decline over the last five years, including criminal justice, technology, early care, education, medical assisting, medical laboratory technology, and surgical technology (Emsi, 2019). Related to lack of interest, wages in many of the most in-demand occupations provide annual median earnings per worker of less than $25,000 per year, including nursing assistants, personal care aides, and health aides (Emsi, 2018). The business and

information technology meta-cluster includes programs and courses related to business, management and administration, information technology, and marketing (Emsi, 2019). Secondary student enrollment in business and IT-related programs and course offerings remains strong and in 2019-2020 accounted for 36% (5,794) of all secondary CTE enrollments (Emsi, 2019).

This popularity of the business and IT-related cluster was reflected in the survey results of area high school parents and students. Business and IT-related job requirements are evolving rapidly, so careful calibration of program skills/competencies and employer needs will require responsive feedback systems, an adaptable curriculum, and flexible faculty. The secondary to postsecondary pathways for business and IT cluster includes preparation for more than 34 different occupations with eight identified by the state skills gap summary, including accountants, auditors, tax preparers, computer systems analysts, computer programmers, software developers, applications, network and computer systems administrators, bookkeepers, accounting, auditing clerks, and human resources assistants, except payroll and timekeeping (Emsi, 2019). The manufacturing and STEM meta-cluster includes programs and courses related to agriculture, food, natural resources, architecture, construction, manufacturing, STEM, transportation, distribution, and logistics (Emsi, 2019).

Secondary student enrollment in programs and course offerings related to business and IT is significant, and in 2019-2020 students enrolled in business and IT accounted for 32% (5,159) of all secondary CTE enrollments (Emsi, 2019). This meta-cluster's secondary to postsecondary pathways include preparation for more than 35 different occupations, with nine identified by the State Skills Gap summary. These include heating, air conditioning, refrigeration mechanics and installers, industrial machinery mechanics, maintenance and repair workers, computer-controlled

machine tool operators, metal and plastic machinists, tool and die makers, welders, cutters, solderers, brazers, welding, soldering, and brazing machine setters, operators, and tenders (Emsi, 2019).

CTE Transition Programs and Student Outcomes

Castellano's (2012) longitudinal study examined the impact of programs of study on high school academic and technical achievement. The study involved two districts that participated in experimental and quasi-experimental strands of the study. The researcher gathered data from ninth and tenth graders through site visits. Few differences existed across groups in ninth grade. Still, by the end of tenth grade, students' test scores, academic grade point averages, and progress to graduation tended to be better for the students in programs of study than for control/comparison students (Castellano et al., 2012). By the time of expected graduation, students from certified pathways had also completed more credits, graduated at higher rates, and dropped out at lower rates than similar peers (Warner et al., 2015).

The University of Pittsburgh uses strong mentorship and peer support to help K-12 students transition into research and science pathways. Their undergraduate and graduate students engage with third through 12th-grade students through a series of highly interactive, engaging lectures (Manson et al., 2015). The benefits of vocational education compared to general education in 18 countries demonstrated that vocational education, especially in countries with separate vocational track and apprenticeship practice, helps students transition to work (Kim & Passmore, 2016). However, there was clear evidence that students in some programs, like health services, enrolled in college at a much higher rate. Evidence from microdata in Germany points to the labor market as a role in this health services enrollment status (Biatrzsch 2007).

According to O'Brien et al. (2015), when it comes to students in nontraditional courses (e.g., STEM fields), the most crucial factor to consider is the school climate. Unfortunately, many schools often endorse gender stereotypes and comparisons in nontraditional courses and fail to enforce fair rules regardless of gender. In many schools, female students face different behavioral responses from those of male students. Schools are still fighting against sexism and gender biases in instructional materials (Sadker & Sadker, 1994). This adverse school climate may lead students to have inaccurate beliefs about their academic abilities. These gender stereotypes may influence students' academic achievement motivation in nontraditional domains (Eccles et al., 1991). The gender stereotype ideal may lead to the substantial gender differences in employment in nontraditional professions (National Science Foundation, 2013). O'Brien et al. (2015) determined that gender stereotypes might be the case for their studies participating schools.

Fluhr et al. (2017) examined gender differences and gender wage gaps concerning high school students' overall and gender nontraditional CTE course choices. Results from the present study indicate that there is some gender nontraditional enrollment. Certain CTE program areas experience a gender gap in wage earnings and support. Continued efforts such as legislation and further research better understand students' gender traditional and nontraditional course choices and identify strategies to ensure gender equity in choices and wage earnings. Fluhr et al. (2017) suggested that identifying high wage-earning areas in CTE programs and areas with diverging gender participation have long-term implications for labor and economic policy development. The benefits of investing in these CTE programs can positively contribute to long term national economic and labor planning. CTE programs contribute a significant influence on social and economic development. It is vital to promote informed debate and action to invest in

comprehensive CTE programs by highlighting low wage-earning areas and program areas with disparate gender participation. If education is to matter, it must make significant contributions to the direct integration of educational, labor, and economic programs strengthen the pipeline of workers starting from high school (Fluhr et al., 2017).

Literacy

Hyslop (2010) stated that the United States' economic future depends on a well-educated and skilled workforce, and literacy forms the critical foundation of this education and training. The Association for Career and Technical Education provided guidance to address schools' concerns by offering rigorous and relevant education rich in literacy content and strategies. Research has shown that one of the best ways to help students gain literacy skills was to motivate them with content related to their interests (Levels, 2009). CTE programs can do just that with their unique combination of rigor and relevance that can engage students who are otherwise unengaged in the education process. These articles make connections to the CTE curriculum and how relevant literature integrates into teaching and learning.

CTE teachers can provide their students with a mastery of technical vocabulary, writing, and reading in authentic situations with professional development. Embedding English and math is becoming a popular movement in the CTE center in many states. Some teachers struggle with assessments and expectations, while others found ways to use reading and writing in their class. Kohen (2015) discussed the successes of a welding instructor and a construction instructor. She stated, “With the teachers' philosophy of education and ability to see a role for writing within that philosophy being key. Rather than viewing writing as detracting from their overall program goals, these teachers had a vision for writing as a route to disciplinary expertise” (p. 3).

Darling-Hammond et al. (2014) conducted a study in conjunction with the National Dropout Prevention Center/Network that examined South Carolina's 2006 legislated career pathways for all K-12 students along with school, community, and business linkage with schooling. All students must have an Individual Graduation Plan (IGP) created and reviewed yearly by the student, a career counselor, and a parent/guardian. The IGP helps link courses to South Carolina's 16 career pathways. According to Darling-Hammond et al. (2014), for most of the students surveyed and interviewed across a sample of schools, the IGP process helped them feel more engaged in school, less likely to drop out, and more motivated to make better grades.

States are also highly invested in building and strengthening career pathways spanning high school, post-secondary education, and the workplace (Bottoms & Sundell, 2015; Council of Chief State School Officers, 2014; National Governors Association, 2014). According to Bottoms and Sundell (2015), education and career development are intertwined. Bottoms et al. (2015) also pointed out that research and practice on CTE have been severely underdeveloped. The technological revolution has produced a culture that requires career preparation to be a vital part of secondary education and beyond.

College-Going

The recent focus on CCR has emphasized college-going, with minor detail on how career readiness was measured or achieved. Dougherty (2016) concluded that students who participate in one or two courses in a CTE pathway in high school are not, on average, substantially different in their probability of attending college just after high school from their peers who did not have the same CTE experiences. For over 100 years, industry and educators have understood that CTE in high school is one avenue through which some career readiness measures might be achieved (Lazerson & Grubb, 1974).

However, almost no research has sought to understand this potential linkage between high school CTE participation and college enrollment (Dougherty et al., 2016). Some earlier work has explored whether CTE participants in high school entered the workforce and how they have fared in wages (Bishop & Mane, 2005; Neumark & Rothstein, 2006). More recent work has focused on how CTE participants in community colleges have fared in the workforce (Kurleander et al., 2014; Trimble & Xu, 2014). Some existing research has established a strong linkage between dual enrollment programs and college enrollment, but no research has explicitly focused on high school CTE programs and its impact on college enrollment. The deficiency of this literature points to the assumption that so many individuals trained in the traditional trades would not need or profit professionally from postsecondary education (Dougherty et al., 2016). However, the change in CTE offerings in high schools has generated many professions that require postsecondary education. The push has increased and created a natural progression of programs offered in high school CTE programs (Dougherty et al., 2016). Doughtery et al. (2016) found the importance of understanding the CTE course sequence that students follow between high school CTE programs and postsecondary education as this will provide evidence from which policymakers can design programs and policies that expand CTE pathways. For instance, a student many decide not to take CTE classes because they want to go to college to be a doctor. In that case, they must take advanced high school classes. Students and parents who believe that CTE does not look good on the student's transcript will push administrators to use this information to create better recruitment methods. Browder's 2007 research stated that administrators can then educate students and the guardians on CTE goals and how these goals align with the regular or advanced coursework.

Dietrich et al.'s (2017) findings indicate that high school CTE enrollment is a significant

predictor of certificate attainment and associate degree attainment among community college participants when these outcomes are explored separately. Dietrich et al.'s (2017) work also found that community college students from high school CTE programs had a relative advantage compared with college prep programs regarding the likelihood of associate degrees and certificate attainment as singular outcomes (Dietrich et al., 2017). The competitive advantage may be because high school CTE students are different from high school students in college preparatory programs toward their career goals. Other factors were significant predictors of community college outcome attainment as well. Prospective scholars in this area may consider variables proposed in the conceptual model by Hirschy et al. (2011), such as educational intentions and goals. The movement can frame CTE results over the past couple of decades, described as a shift from preparing people for jobs to preparing them for both jobs and college (Gray, 2004).

New vocationalism by Bragg (2001), Dietrich et al. (2017), and Turley (2023) “give emphasis to the importance of the post-secondary degree, certification, or advancement in employment and higher-wage careers, and transfer to four-year colleges and universities” (Bragg 2001, p. 3). Numerous secondary schools “adopted vocational and academic integration ideas into their curriculum through programs like career academies, programs of study, and tech prep” (Kamalludeen, 2012, p. 27). Since implementing such programs, some research on this integrated curriculum trend of certificate attainment has emerged. For example, Plank et al. (2008) and Dietrich et al. (2017) suggested that CTE provides students with the necessary skills to succeed in their careers post-secondary education, thus appearing more relevant. As such, it was essential to establish the relative effects of CTE on postsecondary outcomes, including community college outcomes.

Career and Technical Education Dropout Prevention

According to Dougherty (2016), attending a regional, vocational, technical high school dramatically increases high school graduation. Underprivileged students are 32% more likely to graduate if they attend an RVTS, representing a 60% increase given the reference point graduation rate of 50% (Jacob, 2017). The effect for non-privileged students was somewhat smaller but still quite significant—an increase of 23% points from a baseline of 67%, signifying a nearly 35% improvement (Dougherty, 2016).

A national survey designed to capture Americans' attitudes toward public education revealed that Americans overwhelmingly support career preparation and personal skills over pure academics. Findings related to CTE were as follows:

- 82% of Americans support job or career skills classes, even if that means students might spend less time in academic classes.
- 86% say schools in their community should offer certificate or licensing programs that qualify students for employment in each field.
- 80% see technology and engineering classes as a vital element of school quality.
- 82% say that schools must help students develop interpersonal skills such as being cooperative, respectful of others, and persistent in solving problems Phi Delta Kappa's (2017).

Reports such as the *Silent Epidemic* (Bridgeland et al., 2006) in the most current Phi Delta Kappa poll show that Americans overwhelmingly support job or career skills classes, even at the expense of fewer academic courses. *Engaged for Success* (Bridgeland et al., 2008) indicated that students, particularly those who have lost interest in school and are disconnected from participating in secondary school programs, strongly desire to have the secondary school

experiences connect with life and future career aspiration. The transformation of CTE incorporates hands-on learning, real-world applications, and career coaching by counselors, teachers, and business partners and has the potential to produce great results for students, their families, and employers. Chappell et al.'s (2015) meta-analysis found that career and job training programs have the most significant measured effect for dropout prevention strategies. An article from America's Promise Alliance shared a story from a young student named Anna Populorum. Populorum (2016) stated that her, "movement from a traditional school to a career and technical education program was where she found meaning and purpose in her education" (p. 6).

Summary

Research on CTE has not kept pace with policy interest, and there is still much to be done (Alfeld, 2016). Jacob (2017) pointed out that there was only one study currently in the What Works Clearinghouse in secondary CTE, and it was from the 1990s before much of the transformation of CTE took place. Stone (2004) stated that CTE is unique as the nation moves into the school reform era's sixth year.

The literature reveals that federal and state entities and districts find ways to enhance students' abilities through career and technology education. The researcher sees the role of vocational training through the eyes of history related to education. In the early years, vocational education adopted a brand that did not necessarily change with the new CTE format's ideas. Although there have been promising research findings on how a strong CTE program can improve social and emotional IQ and enhance students' literacy skills, they have a chance to meet the demand of the 21st-century college and career mandate. There is still not enough research to determine CTE as the go-to model to solve the educational issues that have labeled America as one of the lowest-performing countries for literacy and math. In the last decade,

policymakers and educational professionals have looked at CTE as a viable model to prepare students for the 21st century when incorporated with high academic standards.

CHAPTER THREE: PROPOSED METHODS

Overview

This applied study aimed to solve the problem of an inadequate number of high school seniors at Avenger Career Technology Center that meet the requirement of South Carolina's Profile of a Graduate. Student scores on the ACT exam for the 2018–2019 school year were English 65.5%, math 81.1%, reading 77.9%, and science 85.6%. According to the district where the Avenger Technology Career Campus resides, these scores did not meet college- and career-ready requirements. Therefore, it was essential to conduct this research to determine how to improve outcomes to meet South Carolina's Profile of a Graduate mandate. Details included in this chapter describe the research design, research questions, research setting, and participants. Other information consists of the researcher's role concerning the study, procedures, data collection methods and procedures, data analysis procedures, and ethical considerations directly related to the study.

Design

This study was conducted using a multimethod research design. A multimethod design was appropriate for this study because the researcher collected and analyzed data, integrated the findings, and drew inferences using qualitative and quantitative approaches in a single study (Rog, 2009). The first two approaches were qualitative and in the form of interviews and a focus group. The third approach was quantitative and in the form of a survey. According to Creswell and Poth (2018), data integration is a crucial element in multimethod analysis and conceptualization; therefore, qualitative and quantitative data analysis procedures will be utilized for this study.

The applied research approach was valid for this study, as it allowed the researcher to be

in the school environment with the participants. It also allowed the researcher to gather data through interviews, focus groups, and surveys to explore how to solve the problem of an inadequate number of high school seniors at ACTC that meet the requirement of South Carolina's Profile of a Graduate mandate.

Multimethod research provides strengths that offset the weaknesses of using quantitative or qualitative research alone. According to Creswell and Plano Clark (2011), quantitative research is weak in understanding the context in which people live their experiences, while qualitative research has weaknesses because of the personal interpretations made by the researcher. The combination of both quantitative and qualitative research allows for the strengths of each method to outweigh the weaknesses of the other.

Research Questions

Central Question: How can the problem of the inadequate number of high school seniors at Avenger Career Technology Center that meet the requirement of South Carolina's Profile of a Graduate be solved?

Sub-question 1: How would administrators in an interview solve the problem of the inadequate number of high school seniors that meet the requirement of South Carolina's "Profile of a Graduate" be solved at Avenger Career Technology Center?

Sub-question 2: How would students in a focus group solve the problem of the inadequate number of high school seniors that meet the requirement of South Carolina's "Profile of a Graduate" be solved at Avenger Career Technology Center?

Sub-question 3: How would quantitative teacher survey data inform the problem of the inadequate number of high school seniors that the requirement of South Carolina's "Profile of a Graduate" at Avenger Career Technology Center?

Setting

Avenger Career Technology Center is a secondary school that serves three districts in a single county in South Carolina. Nineteen percent of county residents aged 25 years and older have attained a bachelor's degree compared to 25% for state residents (Emsi, 2018). The county's median household income was $41,822 compared to $45,033 for the state (Emsi, 2018). County residents live below the poverty level is at 17%, while that rate is 16% for state residents. Avenger Career Technology Campus is a multi-district career center that serves approximately 1,000 students representing three districts in Anderson County. ACTC has four administrators, one student service counselor, one career development facilitator, and 27 teachers. There are 20 programs of study on campus. Each program curriculum is designed to prepare students to graduate college and be career ready. ACTC has pathway articulations with the local XLL Technical College. Students in mechatronics, engineering, machine tools, welding, and health science can enroll at XLL during their senior year. Students who successfully finish the postsecondary pathway earn a degree from XLL Technical College before graduation. Major industries have partnered with ACTC by sponsoring a room or a hall in their company's name. Students are scheduled for a morning or afternoon block of time, which requires them to take a course for three hours a week for nine weeks before moving into the next course in the same semester.

Participants

In this applied research study, the participants were selected using the purposeful sampling model. Purposeful sampling is widely used in qualitative research to identify and choose information-rich cases for the most effective use of limited resources (Patton, 2002). Groups of exceptionally knowledgeable or experienced individuals are selected to represent a

phenomenon of interest (Creswell & Plano Clark, 2011). In this case, the participants interviewed along with those surveyed had a combined 150 years of experience in the career and technical field and postsecondary education. The teachers surveyed have worked in a career and technical during their teaching career. Working with administrators in the career and technology field gave the researcher a great deal of relevant information about meeting South Carolina's mandate of Profile of a Graduate. The study consisted of a minimum of 60 participants to obtain a richness of data and provide an opportunity to focus on critical issues. Student subjects were expected to be 17-18 years of age, and teachers and administrators between 22 and 80 years of age. The school student demographics are 55% White, 34% African American, and 6% Hispanic. The district poverty index was 52%, special education 12%, gifted/talented 40%, and English as a second language at 5%. The researcher sought out participants' views to establish the credibility of the findings and interpretations. Engaging participants by seeking out their views increases the study's reliability because participants can clarify anything that they may have expressed (Creswell & Poth, 2018).

The Researcher's Role

The researcher is a doctoral student at Liberty University who has always had a passion for improving children's ability to excel in life in general. The researcher's motivation for conducting this study was driven by the lack of students not meeting the Profile of a Graduate mandate in central South Carolina. The researcher's interest in this topic was triggered when the mandate became the district's focal point of leadership meetings.

Hernandez (2011) found that a student who is not reading on grade level by the time he or she was finished with a third grade was four times less likely to graduate than students who are reading on grade level. South Carolina restructured its educational system to improve reading

in younger grades. Another motivation for conducting this study was so students may be successful in the future workforce. Students that attend ACTC are engaged in a skill training environment each time they enter the building. The researcher's role is to manage the facilities and equipment budget for the district. The researcher also sets procedures and policies to ensure students attending ACTC work in a safe environment. The researcher was aware of three biases when researching ACTC. The first was the belief that students who complete a four-course sequence in a particular pathway will likely be college and career-ready. Secondly, the researcher believes that ACTC and XLL Technical College pathways align to give students who attend ACTC a seamless transition to postsecondary education. Finally, the researcher believes that all ACTC teachers deliver the curriculum and communication to allow students to acquire the skills listed in South Carolina's new legislation.

Dewey (1916) believed that students should engage in real-world, practical workshops to demonstrate their understanding through creativity and collaboration. The researcher conducted his research with the knowledge that humans are connected to the creator. During the researcher's interactions with students, administrators, and postsecondary educators, they will be treated as such.

Procedures

Prior to collecting data, the researcher received full Institutional Review Board (IRB) approval (see Appendix A). No data was collected or accessed before obtaining all necessary permissions and IRB approval (Creswell & Poth, 2018; Humphreys, et al., 2003; Yin, 2014). Once IRB approval was obtained, the process of data collection began. Written permission to conduct the study was obtained from the principal of the participating school, who was the key gatekeeper at the site.

Next, consent forms (see Appendix B) were e-mailed using the recruitment e-mail (see Appendix E). Purposeful sampling was widely used in qualitative research (Palinkas et al., 2015). Eliciting participants for this study was done by criterion and purposeful sampling. The research was conducted using three forms of data collection for this study. The first data collection method was interviews. Liljedahl et al. (2015) described the interviewing process as the intention of the interviewer to gain insight into the social environment in the setting. The researcher conducted semi-structured, face-to-face interviews with the five leadership team members at a convenient location for privacy and confidentiality. The interviews lasted between 30 minutes to one hour each and were recorded via a video recorder, a Microsoft Surface tablet, and an iPhone to ensure that recording occurs. The recording allowed the researcher to ensure the accuracy of the interviewees' responses later. Following the interviews, transcriptions were made. Notes will be taken during the interviews, which also became part of the data collection documents.

Additionally, the researcher conducted a focus group with 10 student participants from the three attending districts, conveniently allowing for privacy and confidentiality (Rog, 2009). The researcher facilitated the focus group and asked eight specific questions about their experiences at Avenger Career Technology Center. The focus group lasted between thirty minutes to one hour. The focus group responses were recorded via a video recorder, a Microsoft Surface tablet, and an iPhone to ensure that recording occurs. The procedures allowed the researcher to ensure accuracy as the focus group conversations were transcribed later (Gall et al., 2010; Yin, 2014). For the quantitative portion of the study, the researcher administered the survey using a Google form to the classroom teachers. The survey was shared through Google drive with all teachers, with a minimum of 15 required to consent by participating. Having at

least 15 teachers participating provide a large enough sample size to reasonably interpret the data and allow fair coverage (Merriam, 2009).

Data Collection and Analysis

Three data collection approaches were required for this applied dissertation. Also, research experts indicate that the "use of multiple methods to collect data about a phenomenon can enhance the validity of the study's findings through a process called triangulation" (Gall et al., 2006, p. 557). The data collection process included gathering information pertinent to the study (Bickman et al., 2009). In this study, data collection was done in a variety of different ways to triangulate the data.

Triangulation was essential to confirm the ethical validity of the research process (Yin, 2018). The researcher used triangulation to help clarify the data collected and cross-referenced the information to formulate the emerging themes. Colored markers were used to code themes as they arose while the researcher reads the information. This process allowed the researcher to look for specific items, aggregating information into large ideas and providing details supporting the themes (Creswell & Poth, 2018). By incorporating triangulation, the researcher was able to explain how the data connects to the study research questions and purpose. A holistic analysis approach was used to examine all the data gathered and present findings. The researcher analyzed the entire data and present a description, themes, interpretations, or assertions related to the whole case (Creswell & Poth, 2018). Field-based decisions were made regarding what was salient to the study relevant to the study's purpose. The field-based approach helped the researcher to build rapport with participants and gatekeepers, learn the culture and context, and check for misinformation.

Analyzing the data was the most crucial piece of the research and can be biased by the researcher's feelings on the subject (Creswell & Poth, 2018). Data analysis must be completed after data was collected to ensure the authenticity of the analysis. The researcher must follow the data analysis guidelines to accomplish authentic research through the data analysis procedures. According to Creswell and Poth (2018), data integration is crucial in multiple methods analysis and conceptualization; therefore, qualitative and quantitative data analysis procedures were utilized for this study. The first approach was qualitative, in the form of interviews. The second approach was qualitative in the form of a focus group. The third approach was quantitative in the form of a survey.

Interviews

The first sub-question for this study explored how administrators in an interview would solve the problem of students not meeting the requirement of South Carolina's Profile of a Graduate mandate at Avenger Career Technology Center. The researcher scheduled a mutually agreeable time and place to interview the participants. The administrator interview questions were open-ended, and the interview was semi-structured. Conducting semi-structured interviews allowed for questions to be refocused if necessary and for follow-up and clarifying questions to be asked (Creswell, 2012). The interviews lasted between 30 minutes to one hour each. Interviews were recorded via a video recorder, a Microsoft Surface tablet, and an iPhone to ensure that recording occurs. Following the interviews, transcriptions were made. Notes were taken during the interviews, which became part of the data collection documents.

Administrators who work at ACTC were chosen to participate on a volunteer basis. They received the interview protocol focusing on the purpose of the study, an explanation of retention, and a description of the researcher's status as a doctoral candidate. Creswell (2012) explained

that the interview protocol must have a heading and instructions for the interviewer to follow. Five participants were interviewed, and all five participants were adults above the age of 18. Pseudonyms were used to protect the participants' identities.

Based on the preference of the interviewee, a face-to-face or a Google meet interview was utilized. The interview protocol consisted of the following open-ended qualitative interview questions:

1. What is the vision at ACTC?

John Dewey's (1916) writings in *Democracy and Education* explored the idea that schools are a critical method of transmitting education, forming the young's dispositions. Bandura stated that learners could monitor, control, and change the learning environment and behavior purposefully, according to predefined goals (as cited in Brau, 2018). By answering this question, participants further developed their thoughts and experiences about how the vision for ACTC is connected to South Carolina's initiative. The question also allowed the participants to reduce any stress they may have during the interview.

2. Please tell me a little about yourself and the role you have here at ACTC.

Mayombe et al. (2020) studied adult learners' perceptions of constructivist principles in teaching and learning in non-formal education centers in South Africa. The findings revealed that facilitators used constructivist theory when teaching adults in non-formal education centers in KwaZulu-Natalthat, South Africa. Adults were engaged in collaborative learning within groups for classroom activities or work projects assigned by teachers. Pai and Mallya (2016) viewed collaborative learning as an approach that entails peer exchanges of ideas and skills among learners. The question allowed the participants to talk more about them and their roles at ACTC and how it allows teachers and students to work in a collaborative environment to help

students gain the skills related to the Profile of a High School Graduate. This question also served as an icebreaker.

3. How does your role support students in developing the characteristics of South Carolina's "Profile of a High School Graduate?

Maheshwari and Thomas (2017) noted that the constructivist theory of teaching assumes that learners and teachers are not two sides in the learning process but represent a team who cooperates towards achieving a common goal by overcoming the barriers in the learning process. The question allowed the researcher to gain insight into how the participants see their role in setting an environment that supports students on their campus conducive to South Carolina's initiative.

4. Describe the efforts that have been made to align students' activities to the South Carolina profile of a high school graduate's expectations?

Students who have experience with work-based learning activities, post-secondary credentials, and dual credit opportunities while in high school are prepared for industry and post-secondary education (Carnevale et al., 2015; Deming, 2015; Kim & Passmore, 2016; Sundell, 2017). Students should have world-class knowledge, world-class skills, and life and career characteristics (S.C. Department of Employment & Workforce Business Intelligence Department, 2019). The question allowed the participants to discuss their activities and how they align with the expectations of the South Carolina Profile of a High School Graduate mandate.

5. How is data used to inform you on continuous improvement to prepare college and career-ready students?

In 2018, 35.3% of seniors that earned a diploma in the district where ACTC is located were college and career-ready (SC School Report Card, 2018). This question revealed how the

participants make decisions based on data to prepare students for college and a career.

6. Describe ACTC's approach to providing professional development/activities that support students meeting South Carolina's Profile of a High School Graduate?

The U.S. Association of Career and Technical education define college and career readiness as students with core academic, employability, and technical skills (Castellano et al., 2017). The question allowed the researcher to gain some insight into how the participants use professional development and activities that support all students meeting the South Carolina profile of a high school graduate mandate.

7. What significant challenges do you and your tech center continue to face in fully helping students meeting South Carolina's mandate?

Under South Carolina's initiative, any students that demonstrate world-class knowledge, world-class skills, and life and career characteristics are college and career-ready (Young et al., 2017; SC EOC, 2014). Vocational education historically has been a stable form of education in European countries such as Germany and Finland. However, it often comes with a stigma in the US, as many believe only low-performing and troublemaking students attend career campuses (Fitzgerald, 2018). The lack of student preparation in secondary schools impacts students' ability to obtain a postsecondary degree. According to a recent Census Bureau Current Population Report in 2018, approximately 72% of individuals between the ages of 25 and 34 in the United States had earned a high school diploma or higher. The researcher asked this question to understand how the participants handle challenges they face when trying to support students meeting South Carolina's initiative.

Creswell and Poth (2018) stated that the various accounts of a phenomenon would appear in themes or joint statements. Interview data were analyzed and organized by themes. The

researcher used data coding and thematic development to analyze data in hopes of discovering themes that could add to the discussion and literature concerning students not meeting South Carolina's Profile of a High School Graduate mandate. Within the applied research study, the researcher's curiosity was the guiding force of data analysis (Bickman et al., 2009). Data analysis allowed the researcher to continuously reevaluate data to establish themes and patterns that align with the research questions (Creswell & Poth, 2018; Yin, 2018).

By using individual interviews, the researcher was able to analyze the data for information that supported the research questions. Using codes with categories helped the researcher stay organized and delineate information supporting the study (Creswell & Poth, 2018). Coding categorizes data with labels and codes (Creswell & Poth, 2018). The data were rearranged into groups to help compare things in the same class and between classes (Strauss, 1987). After coding, the researcher began to put data into themes so that conclusions could be drawn. The information gathered by the researcher was entered into a Google spreadsheet. The Google spreadsheet allowed for the use of various types of data to be analyzed. Each interview was transcribed verbatim and analyzed for common themes.

Focus Group

The second sub-question for this study explores how students in a focus group would solve the problem of an inadequate number of high school seniors that meet South Carolina's Profile of a Graduate requirement Avenger Career Technology Center. Gall et al. (2010) stated that focus groups could be highly telling "because the respondents can talk to and hear each other, likely expressing feelings or opinions that might not emerge if they were interviewed individually" (p. 349). Focus groups are a qualitative data collection strategy that attempts to obtain information on a phenomenon through a detailed discussion of various research

participants gathered in one location at a specified time. Focus groups are common within applied research due to the efficiency that it brings concerning data collection. A focus group also minimized reflexivity that might occur between the researcher and a single participant.

The focus group consisted of 10 students from the three attending districts and represented different career pathways at ACTC. Purposeful sampling was utilized when choosing the focus group (Creswell & Poth, 2018). The focus group was conducted in the ACTC conference room during school hours to help create a comfortable environment for all involved (Rog, 2009). The researcher facilitated the focus group and asked specific questions to solve the problem of an inadequate number of high school seniors that meet the requirement of South Carolina's Profile of a Graduate at Avenger Career Technology Center. Focus group questions were each grounded in the literature, as detailed later in this section.

Career/Technical Teachers Focus Group Discussion Questions

1. How many classes have you taken in the career and technical field?

By the time of expected graduation, students from certified pathways had also completed more credits, graduated at higher rates, and dropped out at lower rates than similar peers (Warner et al., 2015). Castellano (2012) found that by the end of 10th grade, students' test scores, academic grade point averages, and progress to graduation tended to be better for the students in programs of study than for control/comparison students (Castellano et al., 2012). By answering this question, participants gave background information about how many courses they have taken at ACTC while introducing themselves to the group.

2. What pathway are you currently in at ACTC?

This question allowed the researcher to gather background information on the participants in the focus group and introduce all participants to each other (Creswell & Poth,

2018). By answering this question, participants continued to give information about themselves related to pathways at ACTC.

3. Please describe a recent activity that required using reading and writing skills.

According to Hyslop (2010), literacy was the critical foundation of a well-educated and skilled workforce. Students who graduate in the 21st century need to think critically and express themselves clearly, both verbally and in writing, to compete in the future workforce. (Education Commission of the States, 2014; South Carolina Education Oversight Committee, 2014; Strayhorn, 2014). The participants in the focus group were allowed to discuss their experiences with literacy in their career and technology courses at ACTC.

4. Please describe a project you completed that required you or your group to create a solution to a real-world problem.

Students who engage in real-world practical workshops to demonstrate their understanding through creativity and collaboration will become good citizens and support themselves (Brau, 2018; Johnson et al., 2012). By answering this question, the focus group revealed if they had experiences that allowed them to create solutions to a real-world problem during their time at ACTC.

5. Describe work you have presented to anyone other than your teacher?

Lev Vygotsky's work suggests that one learns best through interacting with others (Brau, 2018). In other words, when students are interacting with others, their mental abilities are shaped. This question allowed the participants in the focus group to discuss their experiences while presenting in front of audiences other than their teacher and peers.

6. Explain activities you were involved with that supported the life and career characteristics of the profile of the South Carolina graduate?

John Dewey (1929) believed that students would engage in real-world practical workshops to demonstrate their understanding through creativity and collaboration (as cited in Brau, 2018). This question helped the researcher gain information about what activities the focus group participants participated in related to the characteristics that are a part of the profile of a high school graduate mandate.

7. Describe how you have prepared for college and a career by completing your pathway.

Students who have core academics, employability, and technical skills are college and career-ready (Castellano et al., 2017). By answering this question, focus group participants revealed how their pathways have prepared them to be college and career ready.

8. Please share your experiences working with any outside group that helps you develop some of the skills and characteristics related to the Profile of the South Carolina Graduate.

Experiential learning suggests that an individual will learn from doing or partaking in an activity's direct experience (Gross & Rutland, 2017). Drawing from John Dewey's ideas, Kolb and Kolb (2005) popularized the experiential learning theory and the idea that an individual learns best by doing. Under South Carolina's initiative, students who demonstrate world-class knowledge, world-class skills, and life and career characteristics are college and career-ready (Young et al., 2017; SC EOC, 2016). The researcher was able to gain information from the focus group discussion on the students' experiences with working with a mentor within their field of study that helped them gain the skills they needed to be college and career ready.

All forms of participant data remained categorized by the participants during the data collection process (Creswell & Poth, 2018). Categorizing data was essential for accurate record keeping. Recordings for the interviews were transcribed verbatim. Information was then loaded

into a Google spreadsheet on the computer, manually analyzed, and then organized into codes and themes (Yin, 2014) considering the research questions. Elliot (2018) stated that coding assigns a shorthand name to data to categorize and group the information. Themes come from the characteristics of the phenomenon being studied, professional definitions in literature reviews, common sense constructs, researcher's values, theoretical orientations, and personal experiences (Ryan et al., 2003). Data was coded and categorized by themes revealed in the analysis process.

Survey

The third sub-question for this study explores how quantitative survey data of ACTC CTE teachers would inform the problem of graduating students that are college and career ready by the Profile of a High School Graduate standards in South Carolina. The researcher used Google Forms to deliver the questions to the subjects. The form was set up to permit manual scrolling, allowing respondents to move onward or backward through questions quickly. The form questions were set up using text input fields (Rog. 2009). Due to the scale nature of the response, this style was most effective and encouraged accurate survey completion to elicit valuable feedback. Permitting the subjects to view the entire survey promoted survey completion participants could easily monitor their progress. Next, instructions explain how the survey should be completed with concise detail. The survey was sent as a link via Google forms to 21 teachers at ACTC, allowing for a reply if further clarification was needed. The email expressed the necessity for why such research occurred and asked for volunteer instructors who were willing to set aside 15 to 30 minutes of their planning time to answer the online survey. Data collection for the quantitative portion of the study consisted of participants' responses to an online Google form survey that assessed teachers' perceptions of their activity in the classroom

instruction. Participants took the survey in class with an electronic device to access the Internet and the Google Forms survey.

This online survey tool recorded the data from the participants. The researcher did not collect names or emails of the participants, and a complete description of the study and individual anonymity was provided in writing at the onset of the survey. Completion of the Likert scale confirmed consent to participate. The directions for this web survey are provided in Appendix G.

Directions: Please choose the options you feel most fit your feelings on school and classroom practices that support students meeting the Profile of the South Carolina Graduate.

1. What is your race/ethnicity/gender?
    - Black or African American
    - Asian
    - White
    - Native Hawaiian or Other Pacific Islander
    - American Indian or Alaska Native
    - Hispanic or Latino
    - Male
    - Female

In this question, the researcher gained information surrounding teachers' race/ethnicity.

2. How many years of teaching experience do you have?
    - 1 to 2
    - 3 to 5
    - 6 to 10
    - More than 15

In this question, the researcher gained information about teachers' years of experience teaching.

3. Current teaching field?
    - Traditional
    - Career Pathway Teacher

In these questions, the researcher gained information about the teachers' teaching path.

4. What was your occupation before teaching?
    - Post-Secondary
    - Industry
    - Alternative teaching program
    - Military

In this question, the researcher gained information on teachers' occupations before they entered the teaching profession.

Please respond to the following statements about literacy instruction in your classroom.

5. I ask students to complete written assignments that require them to cite supporting evidence from the CTE text they read.

1	2	3	4	5
Never	Some of the time	Often	Almost Always	Always

Students need to think critically to evaluate what they read; express themselves clearly, verbally, and in writing; and understand scientific and mathematical thinking (Sawyer, 2018). This question provided insight into teachers perceived instructional literacy practices in their CTE classrooms.

6. I provide opportunities for students to discuss connections between technical materials read and CTE content.

1	2	3	4	5
Never	Some of the time	Often	Almost Always	Always

A constructivist teacher uses learner-centered principles, where learners work collaboratively in the classroom environment. Scholars like Jony (2016) and Mentz and Van Zyl (2018) defined constructivism as learning and constructing

meaning, and this is how learners make sense of their experiences. This question identified how often teachers and students discuss content together rather than teachers only delivering the content to students.

Please respond to the following statements about career pathway instruction in your classroom

7. I ask students to predict outcomes based on their observations or information provided.

1	2	3	4	5
Never	Some of the time	Often	Almost Always	Always

Students need to think critically to evaluate what they read; express themselves clearly, verbally, and in writing; and understand scientific and mathematical thinking (Sawyer, 2018). This question revealed if the teacher allows students to use critical thinking skills.

8. I ask students to use math to solve complex problems related to their assignments.

1	2	3	4	5
Never	Some of the time	Often	Almost Always	Always

Under the Profile of the South Carolina graduate initiative, students must demonstrate world-class knowledge of rigorous standards in language arts and math for a career and college readiness (Young et al., 2017). This question determined if teachers are implementing math strategies into CTE coursework or projects when the opportunity is available.

9. I ask students to apply academic knowledge and skills to their assignments.

1	2	3	4	5
Never	Some of the time	Often	Almost Always	Always

The U.S. Association of Career and Technical Education define college and career readiness as students with core academic, employability, and technical skills (Castellano et al., 2017). This question determined if teachers encourage students to use academic knowledge in CTE classrooms.

I ask students to work in teams to complete rigorous assignments.

1	2	3	4	5
Never	Some of the time	Often	Almost Always	Always

Pai and Mallya (2016) view collaborative learning as an approach that entails peer exchanges of ideas and skills among learners. Piaget identified two processes on how learning occurs rather than what influences learning. These processes are accommodation (reframing one's mental representation of the external world to fit new experiences) and assimilation (the process by which a person or persons acquire the social and psychological characteristics of a group), which are vital in the interaction between experiences and ideas (Brau, 2018). This question determined if teachers plan their assignments that allow students to work in teams.

Does your school offer the following senior-year options to prepare students to succeed in their postsecondary next steps?

10. Opportunities for students to earn an industry-recognized credential by the time they graduate.

() Yes

() No

Students who have experience with work-based learning activities, post-secondary credentials, and dual credit opportunities while in high school are prepared for industry and post-secondary education (Carnevale et al., 2015; Deming, 2017; Kim et al., 2016; Sundell, 2017). This question determined if the teacher program of study offers industry-recognized credentials that support students' next steps toward being college and career-ready.

11. Opportunities for students to enroll in an early college program, such as a dual-enrollment program or Tap credit with a local community college.

    () Yes

    () No

Dietrich et al.'s (2017) findings show that high school CTE enrollment is a significant predictor of certificate attainment and associate degree attainment among community college participants when these outcomes are explored separately. Dietrich et al.'s (2017) work also found that community college students from high school CTE programs had a relative advantage compared with college prep programs regarding the likelihood of associate degree and certificate attainment as singular outcomes (Dietrich et al., 2017). This question determined if the ACTC offers any pathway that offers a seamless transition to post-secondary education.

12. Opportunities for students to master employability skills through work-based learning experiences.

    () Yes

    () No

Vennix et al. (2017) found that students' motivation during outreach activities and attitudes towards the social implications of STEM and future career intentions were very positive. Adding outreach activities to the curriculum would thus potentially add value to a student's reported intrinsic motivation. This question determined if students could master their employability skills through working with an employer within their field of study.

The survey responses aimed to produce a data set to identify trends and patterns and produce an anonymous overview of the teachers' responses. The information collected from this survey was downloaded onto a flash drive and kept in a secure safe, preventing others from accessing the information. The teacher survey was designed using a Likert scale to allow the teachers to express how they would solve the problem of graduating students' meeting college and career readiness by the Profile of a High School Graduate standards in South Carolina. The survey results allowed educators to explore the views and practices related to the level of rigor delivered in the classroom. Teachers were asked to rate their classroom experiences using a five-point Likert scale. Questions five through 10 were be represented on the Likert scale by the following: 1 Never; 2 Some of the time; 3 Often; 4 Almost Always; 5 Always, while questions 11 through 16 were represented by the yes or no option. The Likert scale method can assess the participants' opinions, attitudes, or behaviors (Bhandari, 2020).

The researcher used Google forms to gather and organize quantitative data for analysis. The data from the online survey were analyzed by using descriptive statistics. Descriptive information concerning those completing the questionnaire and data about schools and students were summarized and presented using bar graphs, trend charts, and pie graphs. The researcher adhered to the following steps to analyze the data: (a) collected data from Google Drive website,

(b) downloaded data onto a Google spreadsheet, (c) reviewed data, (d) analyzed data, and (e) reported findings for analysis of qualitative data.

Ethical Considerations

With research comes the responsibility to conduct the study ethically. The researcher will follow the guidelines set forth by Liberty University with human subjects, gathering data, and formulating conclusions with the most negligible bias (Yin, 2018). The researcher sought IRB approval before starting any data collection. After IRB approval, an informed consent form was given to each participant. Parents received a consent form via email to be signed and returned to give consent for any students under 18 interested in volunteering in the study. An adequate amount of time was provided to allow participants and parents to review the form. Before completing the interviews, an explanation was given of the recording process, confidentiality, and the understanding that the participants can stop the interview at any time. The focus group had the same discussion but with the added explanation that the researcher could not assure participants that other group members would not share confidential conversations with persons outside the group. For the protection of the survey participants, the researcher did not collect names or email addresses on the Google Form to ensure there was no identifiable information in the data (Creswell & Poth, 2018).

Gaining and securing the trust of the participants was key to completing the study. To ensure that participants trust, the researcher employed pseudonyms to ensure participants' and the school's anonymity for the study. The researcher provided participants with his educational background, the purpose of the research, and the contact information for any questions the participants may want answered. The participants were fully informed regarding the procedures of the research before the study. All data were kept on a password-protected computer and a

password-protected external hard drive to maintain credibility for the study, which will remain locked in a secure location for three years before being deleted. The information obtained through Google Drive will be protected by a password and a code for which only the investigator has access to ensure the security of the data. Researching a school setting can create bias, so to reduce bias, the researcher ensured that questions were phrased neutrally, avoiding guiding words or phrases and eliminating jargon (Creswell, 2015).

Summary

Chapter Three presented the research methodology employed to analyze how the problem of an inadequate number of high school seniors that meet the requirement of South Carolina's Profile of a Graduate be solved at Avenger Career Technology Center. A detailed description of the data instruments was provided and how each element was designed to support the case study framework used in this study. This chapter discussed how the data were gathered, analyzed, and interpreted. Triangulation of the data were used to represent ACTC data accurately. The findings presented in Chapter Four will be based on the analysis of the data gathered through the careful extraction of constructs expressed in terms of themes and correlated with the research questions that guided the study.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this applied study was to explore how the problem of an inadequate number of high school seniors that meet the requirement of South Carolina's Profile of a Graduate can be solved at Avenger Career Technology Center and to formulate a solution to address the problem. The researcher used a mixed-methods design comprising of both qualitative and quantitative approaches. Qualitative data was gathered through interviews and focus groups, and quantitative data was collected through survey responses. The researcher analyzed the data and identified themes parallel to previous empirical and theoretical research. Themes were recognized, and solutions to the problem were presented. The researcher begins Chapter Four with a description of the participants and an explanation of the research findings. Next, the researcher discusses the study's findings relating to Chapter Two's empirical and theoretical literature. Finally, this chapter concludes with a summary of the researcher's findings. A clear grasp of the research environment was obtained using themes central to the study.

Participants

Administrations, students, and teachers participated in this study. The researcher selected participants closely involved with the site studied and the population of students it serves. First, the researcher conducted one-on-one interviews with five administrators at the center. Next, 10 students participated in the focus group discussion. Finally, 18 teachers completed a survey. Administration and teachers have worked in the facility since its opening in 2019. All students in the focus group had completed a pathway that takes two years to complete. The researcher used pseudonyms instead of names to protect participants' identities. The following sections describe the study's participants.

Interview Participants

The interview participants included two males and three females with extensive years of experience in leadership. As Table 1 indicates, the mean average age of the participants was 58.6 years. The administration had a mean average of 34.2 years of experience in leadership.

Table 1

Interview Participants

Position	Age (*SD* =58.6)	Years' Experience (*SD* =34.2)
Executive Director	80	56
Assistant Executive Director of Instruction	51	25
Director of Student Services	53	31
Assistant Executive Director of Business	52	22
Career Development Facilitator	57	37

The researcher interviewed five administrators who worked at the Avenger Technical Technology Center. The interviews occurred in each one of their offices during school hours. The researcher used a voice recorder and transcription tool on a Microsoft tablet to record and transcribe the interviews. The researcher listened to each recorded session at least two times to ensure the speech-to-text translation was accurate. The consent form was read and signed by each participant before the interview. Pseudonyms were used to protect the participants' identities.

Dr. Larry has 56 years of educational experience with 30 years in leadership. His earliest experiences were as an adjunct professor for Southern Wesleyan and Furman University,

teaching in undergraduate and graduate education and educational leadership programs. Dr. Larry then served as the Director of Career and Technical Education (CATE) for the SC Department of Education for 13 years. Under his leadership in 2010, South Carolina led the nation in its on-time graduation rate of 99 percent for CATE students. He served as president of the non-profit company, Educational Insight Leadership Group, LLC, overseeing incubator projects for the Center for Advanced Technical Studies. Dr. Larry has been a member of the SC Education Oversight Committee since 2015. He has served as the chair of the EIA subcommittee responsible for proposing items that impact statewide education and funding. As Executive Director, Dr. Larry provides direction and supervision to program employees. He consults and coordinates with the three school districts in conjunction with the State Department of Education agencies to meet the needs of students and ensure compliance with federal, state, and local regulations. He also develops and implements standards, policies, and procedures related to career and technical education and short- and long-range goals for the campus.

Mrs. Stella has worked for over 25 years in the secondary education field. She began her career at Abbeville High School and continued to School District 5 as a science teacher in 2002. Stella received National Board Certification in 2002 and renewed that certification in 2012. In 2012, she began working for Anderson School District 3 as a science teacher and AP instructor, then becoming the instructional coach at Crescent High School and working with the administrative leadership team. Mrs. Stella transitioned to School District 5 with the opening of the Anderson Institute of Technology. Her role is to serve the teachers and students in ensuring they stay current with instruction, methodology, and best practices.

Ms. Joann has 31 years in education. As Director of Student Services/Registrar, Ms. Joann is the liaison for Anderson Districts 3, 4, and 5 to support counselors and career

specialists. She advocates for preparing students for career pathways and collaborates with school counselors and career specialists on efforts to positively impact student achievement and postsecondary planning. She develops partnerships with districts, non-districts, and postsecondary personnel to expand the resources available to students through school counseling and career readiness programs including, but not limited to, dual credit opportunities, higher education institutions, college/career fairs, and financial aid events. Ms. Joann also develops college and career pathways unique to the needs of students in collaboration with the school staff, community input, and labor market demands to create coherent sequences of courses in multiple areas.

Mrs. Liz has 22 years of experience developing business and community partnerships and expertise in on-the-job training, work-based learning, internships, and apprenticeship development. As Assistant Executive Director for Business and Community Partnerships, Mrs. Liz develops additional resources, partners, and employers to aid students in their career pathways. She stated, “I’m responsible for engaging local industries and community organizations at the Anderson Institute of Technology (AIT).” Mrs. Liz works with employers to connect students to real work experiences and opportunities for students to engage in the local workforce. She also assists in coordinating AIT advisory committees with over 140 members of experts from business and industry. Mrs. Liz coordinates community and non-profit events and tours at AIT. She provides leadership and public relations necessary to communicate the mission of AIT with community partners and guidance for the marketing and branding of AIT materials and publications.

Mrs. Martha has 37 years of experience in education. She spent 25 years teaching psychology at a local university, worked seven years in a neighboring high school assisting

students with severe disabilities, and served the last five years as a Career Development Facilitator at ATCT. Mrs. Martha stated, “My role helps students focus on soft skills with some of their responsibility and integrity, providing real-life real-world experiences when we take those internships. We place them with mentors; even in the training and apprenticeship programs, students focus on those soft skills and teach life skills, but they also work with direct skills that they would have learned in their career pathways.”

Focus Group Participants

Table 2 reveals that focus group participants had an average of 2.3 years of attendance at the center, and the mean age was 17.85 of participants. Four female and three male participants represented the three districts the center serves. The programs represented include the cosmetology, media tech, health science clinical, auto technology, and digital art and design pathways. Additionally, four focus group participants completed work-based learning for nine weeks of study after finishing their pathway.

Table 2

Focus Group Participants

Grade	Age (*SD* =17.85)	Years of Attendance (*SD* =2.28)
12	18	2
12	18	2
12	18	2.5
12	17	2
12	18	2.5
12	18	2.5
12	18	2.5

The researcher interviewed seven Avenger Career Technology Center students who had spent at least two years in a pathway. Each of these participants were seniors in high school. The focus group was conducted in the ACTC conference room after school hours to help create a comfortable environment for all involved. The researcher facilitated the focus group and asked the participants specific questions to solve the problem of an inadequate number of high school seniors that meet the requirement of South Carolina's Profile of a Graduate at Avenger Career Technology Center. The researcher used a Microsoft Tablet as a voice recorder and a transcription application to record and transcribe the focus group. The researcher listened to each recorded session at least two times to ensure the speech-to-text translation was accurate. All students were 18 except for one of which the researcher obtained parent consent.

Samuel, a student attending the center for two and 1/2 years, completed his work-based clinical study in a local senior adult facility. He expressed how the experience of knowing that

someone's life depended on the skills he learned in the classroom completely changed his approach to his activities. He also highlighted the importance and impact of his education in a tangible way.

Maria, who attended the center for two years and completed the media and film pathway, shared her journey of discovering her passion. Initially considering a career in nursing, she realized that working behind the camera and telling stories through media and film still allowed her to help people. It was a transformative experience that shaped her career aspirations.

Sara, who completed the cosmetology pathway in two years, reflected on the connection between her classroom learning and the real world when she spent time in a local salon. She gained a strong understanding of her desired career path and felt ahead of her peers in knowing what she wanted to do with her future.

Jared, a student in the media and film pathway for one and a half years, highlighted the boost in confidence he experienced through interactions with adults in the community while filming. The class provided him with a platform to express himself through words and pictures, which he felt uncomfortable doing in person. It allowed him to discover and embrace his abilities.

Dan, a student in the auto technology pathway for two and a half years, shared his transformative perspective. Initially, he didn't believe that college was within his reach. However, a speaker who discussed the opportunities offered through the Auto Tech pathway opened his eyes to the possibilities. It was a pivotal moment that shifted his aspirations and motivated him to pursue higher education.

Carrie, who completed the cosmetology pathway in two years, spoke about her experience competing in Skills USA. The competition allowed her to showcase her skills and

talent, and she placed 10th nationally. It significantly boosted her confidence and solidified her sense of belonging in the cosmetology field, even though she initially felt slightly inferior to her friends who were on a college track.

Alexandria, a digital art student who attended the center for one and a half years, initially felt reluctant to take the class, feeling compelled by her counselor's recommendation. However, her capstone project turned out to be a turning point in her perspective. She landed a client in the food business industry in Anderson and was able to design his food truck, menu, and website. She attributed her success to the skills she acquired at the center.

The participants' personal stories illustrate the transformative impact of attending the center and completing various career pathways. Each student discovered their passions, gained confidence, and found their place in the professional world. Their experiences highlight the value of hands-on learning, work-based opportunities, and the acquisition of practical skills that can shape their futures.

Survey Participants

The survey was sent to 23 careers and technical teachers at Avenger Career Technology Center. Eighteen teachers, or 78%, responded. Fifteen teacher participants had 10 years of experience teaching in secondary school and three in post-secondary technical school. Sixteen of the teachers worked in industry as their previous job before teaching. Fifteen white teachers and three black or African American teachers answered the survey. The researcher used a Google Form, a static web instrument, to deliver the questions to the participants. The form was set up to permit manual scrolling, allowing respondents to quickly move onward or backward through the questions.

Respondents rated their classroom experiences using a five-point Likert scale. Questions five through 10 were represented on the Likert scale by 1 Never, 2 Some of the time, 3 Often, 4 Almost Always, and 5 Always, while questions 11 through 13 were represented by the yes or no option. Data collection for the quantitative portion of the study consisted of participants' responses to an online, anonymous Google Form survey that assessed teachers' perceptions of their activity in classroom instruction (see Appendix G for survey questions).

Results

The researcher sought to determine how the problem of an inadequate number of high school seniors meeting the requirement of South Carolina's Profile of a Graduate can be solved at Avenger Career Technology Center. Data for this research was collected through semi-structured, face-to-face interviews with five administrators. Seven student participants from the three attending districts were interviewed in a focus group discussion facilitated by the researcher. Quantitative data was collected from a survey sent to Career and Technical Education teachers who worked at the site. The survey was designed to learn how the teachers deliver content to the students in the classroom. Coding techniques with categories were used to organize interview responses into themes. These themes were then itemized by frequency to determine the dominant themes that answered sub-question one.

Sub-question 1

Sub-question one for this study was, "How would administrators in an interview solve the problem of an inadequate number of high school seniors that meet the requirement of South Carolina's Profile of a Graduate be solved at Avenger Career Technology Center?" Interviews were conducted face-to-face and recorded using a Microsoft Tablet and iPhone. The interviews were immediately transcribed to support accuracy. Transcriptions were sent to the interviewee

for approval and content validation. The themes uncovered in the qualitative analysis were students' ownership of their experiences, students having real-world experiences, and internship and apprenticeship opportunities for students when completing a pathway. Tables 3 and 4 display open codes and themes and frequency codes across qualitative data points, respectively.

Table 3

Coding of Themes, Interview Participants

Code	Description	Examples
Work Ready Skills	Comments include roles that help the student develop skills: teamwork, critical thinking, problem-solving, and work ethic.	"I support students developing knowledge, soft skills, and life and career characteristics." "I help students to focus on soft skills by connecting them to mock industry interviews." I work with teachers to improve their content delivery that puts students in teamwork, thinking, and communication when working on an activity."
Internship/apprenticeship	Comments include community services, industry contacts, real-world experiences, resumes, contacts, college, and career fairs, soft skills.	"I found working with students in the counselor department very rewarding, seeing through an internship. The students change so much; their body language differs after that experience. "Bringing in employers and hearing the students talk to employers and allowing employers to share with them gives students confidence that they can perform the work outside of the classroom."
Partnership with Industry	Comments include opportunities for internship, mentors, apprenticeship, real-	"I feel that when students are placed and internships and apprenticeship programs with

	world experiences, character development, and real-time advice to students.	one of our business partners, they have a supervisor or a person responsible for them; that person is really their mentor." "I feel like our business partners with many of our students have made a huge difference in that life experience and how they're taking those skills." "Our partnerships have invested more than 1.2 million dollars in our facility. It has allowed us to purchase the most up-to-date industry equipment for our students." Industry partners mentor our students when they work on their capstone projects, giving them professional feedback and support as they develop their research."

Table 4

Frequency of Related Words, Interviews with Administration Team

Codes	Frequency of Related Words
Work Ready Skills	94
Internships/apprenticeship	83
Partnership with Industry	72
Capstone Projects	68
Student Internship	55
Industry Partnership	43

Theme #1

The first theme identified was work-ready skills. Changes in today's globalized society have shifted the skill demands from acquiring structured knowledge to mastery of skills, often referred to as 21st-century competencies (Barak, 2017). However, new practices are not easily

implemented, and many teachers still practice teacher-centered and lecture-based instruction (Barak 2014; Bel et al., 2013). The center's administration indicated that teamwork, critical thinking, problem-solving, communication, and creativity should be the total experience of students attending the school.

During the interview, Mrs. Stella enthusiastically shared the details of her role, which primarily involves coaching teachers to effectively conduct activities during the three-hour blocks they spend with students. She emphasized the importance of aligning instruction with the standards to ensure that students received rigorous education in line with South Carolina's Profile of a High School Graduate. Mrs. Stella's passion for her role extends beyond academic excellence. She also works closely with instructors to foster teamwork, critical thinking, problem-solving, communication, and creativity among students. Furthermore, she emphasized integrating life and career skills such as work ethic, interpersonal skills, perseverance, integrity, and the ability to envision future careers and goals. Mrs. Stella's approach seemed to align perfectly with the school's mandate.

As the narrative continued, Mrs. Martha, another interview participant, described her role on campus. She focuses specifically on developing students' soft skills alongside other responsibilities. Mrs. Martha plays a crucial role in providing real-life experiences for students who pursued internships. She ensures that students are placed with mentors and that the internships and apprenticeship programs emphasize developing soft skills, life skills, and applying career-specific abilities. Mrs. Martha stated, "When I see a student speak to local industry partners during our career showcase, their confidence gives me chill bumps. Industry partners have made countless statements about how well prepared our students are when speaking with them about a job opportunity."

Mrs. Liz, another participant, discussed her responsibility of designing a comprehensive training plan in collaboration with faculty members, local businesses, and students. This plan goes beyond merely equipping students with job-specific skills; it also incorporates problem-solving and critical-thinking abilities. Mrs. Liz's team provides internships that challenges students to think critically and solve problems. They emphasize the importance of teamwork and allowe students to take ownership of their roles within the plan. Mrs. Liz stated, “When I seek opportunities without industry partners for student internships, I work with the students to see the best fit for them, not the best fit for the industry.”

Lastly, the final interviewee, Dr. Larry, shared his perspective on his role within the building. Dr. Larry examines how the center could support students from psychological and behavioral standpoints. The leadership team recognized that while guiding students academically, they also aim to mentally prepare them. The school's mission emphasizes the behavioral aspect and the importance of students taking ownership of their learning, behavior, and results. By understanding this concept, students find success within the school and are set on a pathway to success beyond graduation. Dr. Larry stated, “When students take ownership of their learning, they will own the results, allowing them to one day own their future.”

Theme #2

Skilled labor in many occupational sectors is strong and growing, and the importance of internships and apprenticeships is supported by the second theme of this study. Not all high school students desire to succeed in academic coursework with the goal of attending college. Stone (2005) suggested a better strategy would be to receive training and preparation during high school before entering a career with decent wages and opportunities to advance.

Research has indicated that work experience has helped prepare people from low-income

areas to enter the job market, particularly in impoverished neighborhoods. Kazis (2005) examined what is known and unknown about secondary education, but the value of high school career-focused education includes CTE as traditionally conceived and more recent innovations. Some innovations include school-to-work, work-based learning, career academies, High Schools That Work, and other models of schools, programs, and instructional practices that put careers and occupation-oriented knowledge at the center of school life. The administrators that participated in the interview strongly believe that internships are the catalyst for helping students meet the SC mandate.

Mrs. Liz emphasized connecting students to the workplace as a crucial aspect of the center's educational program. She recognized that internships and apprenticeships are vital in providing students with real-world experience and preparing them for their future careers. To ensure a successful experience, collaboration between teachers, students, parents, and businesses is essential. The process begins when a student decides on an internship opportunity of interest. Mrs. Liz's team arranges interviews involving the local industry, students, and parents to discuss and review the expectations of the internship. Once the student is enrolled in the internship, teachers and the local business utilize a form to assess and track the student's workplace skills. The focus is on finding the right internship fit for the student rather than solely considering the industry. Another participant, Ms. Joann, shared her role in assisting students with community service-learning opportunities that often lead to internships. She took the initiative to create a brochure outlining the various internship options available at the center, which resulted in a significant increase of 50% in student participation over five years.

The leadership team recognized the crucial role of internships in meeting South Carolina’s mandate. Mrs. Martha highlighted how internships open doors for communication and

allow students to explore resources and opportunities related to work-based learning and credit-bearing courses. As a Career Development Facilitator, Mrs. Martha utilizes course review meetings to connect students with relevant, work-based learning opportunities and potential employers. She finds the experience of working with students in this capacity highly rewarding, witnessing their growth throughout the internship. Mrs. Martha noted that students' body language transformed positively, reflecting increased knowledge, confidence, self-esteem, and a deep understanding of work ethic. The validation of their favorable experiences from employers and community partners further reinforces Mrs. Martha's sense of purpose and fulfillment in her role.

Theme #3

South Carolina was recognized as one of the first states to adopt a statewide profile of progressive mastery across the K-12 years. The mandate is considered the education system's "North Star." The Profile of the SC Graduate includes world-class knowledge, world-class skills, and life and career characteristics as the skills students need as they move into the workforce. The administration indicated that partnership with industry encapsulates the support in developing the necessary skills to meet the mandate. Mrs. Martha stated, "I think they've got a real-life experience through that internship that they would not have had otherwise. I think students get a lot of contacts that they can use for resume writing, seeking employment, seeking summer opportunities." She also shared, "Students have the chance to travel, especially if they express a genuine interest in exploring beyond their regular center activities. This allows the students to collaborate with professionals in the field and gain valuable insights from industry representatives."

When discussing their roles, leadership participants were passionate about how

partnerships support students in meeting the South Carolina mandate. Mrs. Liz discussed that her role when working with students focuses on soft skills with some of their responsibility and integrity, providing real-world experiences. She does this so that when students are placed in internships, they are placed with quality mentors, even in the internships and apprenticeship programs. She stated, "The students focus on those soft skills and teach life skills, but they also work with direct skills that they would have learned in their career pathways." Mrs. Liz continued to describe what that process looked like when she said,

> When placed with an industry partner…that mentor with many of our students has made an enormous difference in that life experience and how they're taking those skills. Still, they're expounding upon them about experiences that they've had. I feel like having that mentor from one of the industry partners gives that student person to go to and talk about their career and their plan to move forward. Those mentors also help connect them to networking opportunities and possibilities.

Dr. Larry he shared that bringing employees into the building at the college and career fair allows employers and students to interact. Dr. Larry also mentioned that when students return and say, "I talked with Mr. or Ms. X, Y, and Z from this corporation because they came through my line where I work part-time; this fair allowed me to speak with them further about the job." Dr. Larry shared that students can continue to use those skills to undergird what they want to do and support what they want to do in the future.

Sub-question 2

Sub-question two asked: How would students in a focus group solve the problem of an inadequate number of high school seniors meeting the requirement of South Carolina's "Profile of a Graduate" be solved at Avenger Career Technology Center? For this study, the

researcher facilitated a group discussion at the ACTC conference during school hours with 10 students representing different pathways at the center. Coding techniques with categories were used to organize interview responses into themes. These themes were then itemized by frequency to determine the dominant themes that impact sub-question two (see Table 5). These results are identified to inspect responses to the research question sub-questions and specified to examine the themes developed during the focus group.

Table 5

Themes with Textual and Structural Elements, Student Focus Groups

Themes	Codes
Capstone Projects	Presenting to people outside of the building, teamwork, capstone projects, learning how to navigate through critical critiques, critical thinking, reading blueprints, designing a product from listening to the customer, helping customers understand what they want when having car issues, being a leader and learning how to follow a leader,
Student Internship	Real-world work environment inside and outside the classroom, rewarding, completing projects that are being used in the real world, writing in technical terms, skills used in the school prepared me for real work, industry paying my college expenses, 120 hours of work that I love, strong support from industry workers, help me pass my industry certification exam,
Industry Partnership	Mentorship, working together, phone calls, college decisions, speaking to students, providing tools for state competition, delivering just-in-time expert advice, sharing their experiences in the industry, helping develop my skills, showing, refining, and displaying my skills to the local community

Theme #1

One of the campus's primary focuses is that all pathway completers complete a capstone project presented in a public venue with adults and students critiquing the projects. ACTC's aim is to be a non-traditional school where student graduates will become entrepreneurs, skilled technicians, skilled medical professionals, accomplished engineers, critical thinkers, and problem solvers of the future. Participants in the focus group seemed to agree with the campus' focus when asked about capstone projects.

Participant Carrie represented the field of cosmetology and enthusiastically shared her experience developing a salon business within the center's program. She explained that they had to make real-world decisions regarding pricing and services. To showcase their work, they presented their salon items to industry leaders during an advisory meeting night, allowing parents to attend. Reflecting on her journey, Carrie mentioned that her teachers played a crucial role in preparing her for real-world scenarios. Initially aspiring to work with human hair, she eventually found her passion in nail care. Using mannequins with natural human hair in training helped her gain practical skills and prepared her for the cosmetology industry. Carrie stated, “Working and speaking with professional cosmetologists helped me gain a real sense of my field. I can remember the feeling when a customer said my work was better than some in the professional world. This made me much more confident in my skills to do hair and nails.”

Focus group participant Jared, a media film student, discussed his experience creating a documentary on teenage life. Conducting interviews with fellow teenagers and posing questions to adults, Jared aimed to foster understanding and bridge the generational gap. His film received critiques from local newsagents and technical college professors within the field, and later, a red-

carpet night was organized to showcase the short film to an audience, resulting in awards for the participants.

Maria, another media and film student, shared her endeavor to create awareness for Westside High School athletes through social media content. In documenting their games and practices, Maria's goal was to boost recruitment and exposure for these athletes, aiding them in their journey to attend the college they chose. Her work was displayed before parents and the community during the football season, receiving feedback that motivated her to continuously improve. Remarkably, Maria's videos caught the attention of the head football coach at Coastal Carolina, ultimately leading to a scholarship offer. Maria stated, "I would never have believed that my high school project would land me a scholarship to work with a college football team. I am thrilled and have gained a new perspective on high school work."

Samuel, a Certified Nursing Assistant (CNA) student, highlighted the hands-on experience he gained by working with senior patients for 40 hours during his final semester. Stressing the importance of meeting real-world standards in healthcare, Samuel acknowledged the unique challenges and critical thinking required when caring for patients at a local facility in the community. Samuel stated, "Critical thinking became real when I had to care for older men and women during my internship. My experience compelled me to be more attentive in my classroom work. I did not want to make a mistake when I knew someone's life depended on me."

During a group discussion, Jared emphasized the role of critical thinking and teamwork in filming a documentary when he said, “finding diverse individuals to interview and navigate permissions when filming in public spaces not only increased my critical thinking, but it also allowed me to apply the teamwork skills I learned in my classroom.” Jared was proud to share

that his video was selected by the superintendent to be showcased at the open district ceremony, recognizing the significance and impact of his work.

Theme #2

The instructional design at ACTC is that teachers are facilitators of learning, guiding students to learn through discovery using the flipped classroom model of instruction. Science theories and research-based solutions are experienced in a contextualized learning environment through student-based projects with students learning in teams, conducting research, conceptualizing solutions to current problems, and discovering solutions yet to be developed. ACTC courses are led by highly qualified master teachers who can connect real-world experiences to their content. As a guide, the teacher will teach students to develop global, technical, academic, soft, and leadership skills to create a mature learner and graduate prepared for the future.

During the focus group discussion, participants shared their experiences and insights about their respective fields. James, who works at a local dealership, expressed how his job taught him valuable time management and prioritization lessons. James explained that diagnosing car problems requires him to first decide which issues to address to meet customers' expectations and return their vehicles within the expected timeframe.

On the other hand, Samuel spoke about his work with patients, emphasizing the critical thinking skills necessary in healthcare. He discussed the need to consider potential mistakes or errors, identify the patient's needs, and determine the appropriate action. Additionally, Samuel highlighted the importance of familiarizing oneself with the facility's layout and navigating it efficiently, often relying on the universal symbols and language used in the medical field.

Reflecting on her experience in sports filmmaking, Maria shared the challenges she faced in coordinating with coaches and athletes. She emphasized the need to work around their schedules and ensure their comfort during filming. Maria recognized the importance of building rapport and trust with the athletes, being present with a microphone and camera to capture their every movement and creating an environment where they felt at ease.

The participants' stories highlighted the diverse demands and skills required in their respective fields. From prioritizing tasks and solving complex problems in the automotive industry to critical thinking and adapting to the specialized language and symbols in the medical field to building relationships and fostering comfort for athletes in sports filmmaking, everyone emphasized the unique challenges and competencies needed to excel in their chosen professions.

Theme #3

John Dewey (1929) believed that students engage in real-world practical workshops to demonstrate their understanding through creativity and collaboration (as cited in Brau, 2018). Under South Carolina's initiative, students who demonstrate world-class knowledge and skills are college- and career-ready. The center's mission is to offer high wages and high-tech programs that meet global academic and technical standards, integrate academic and technical studies, and provide students a seamless transition through a PK-20 educational pathway with dual credit opportunities and industry certifications that prepare every student with a foundation to enter the workforce and be successful after high school graduation. The participants in the group reflected on their experiences at the center, highlighting the valuable lessons and skills they acquired in their respective fields. Sara, who works in a local salon, discussed the importance of setting personal goals, especially during slower periods when clients may be scarce. She recognized the need to maintain motivation and drive to succeed in the industry.

Mentorship was commonly discussed among participants. Alexandria emphasized the value of conversations with coworkers, where they shared their college experiences and career paths. These discussions allowed him to weigh his options and make informed decisions about his educational and professional journey. Having mentors in the workplace helped him gain insights and grow personally and professionally. Jared had a similar experience as his coworker served as his mentor. Jared found great value in their discussions about running a business, making important decisions, and managing sales and staffing. These lessons were instrumental in shaping his understanding of entrepreneurship and preparing him for future ventures. Maria expressed gratitude for her mentor, as he played a significant role in her journey of self-discovery and eventual employment.

Participants also discussed the valuable experience they gained throughout their internships. Dan, who interned at a local dealership, discussed the multitasking skills he developed in handling different tasks simultaneously. He highlighted the need to optimize processes, such as starting a tire rotation while waiting for the oil to drain to ensure efficient service delivery. Dan also mentioned the challenge of diagnosing similar issues in different cars, emphasizing the importance of keeping track of the steps taken to address specific problems. Similarly, Maria's internship experience with high school sports teams paved the way for her future career in media and film. The early morning practices, filming training sessions, and weightlifting all contributed to her growth and led her to a position with a college football team.

Through their shared experiences, the participants demonstrated the value of mentorship, goal setting, decision-making, and the practical skills gained through internships. Everyone acknowledged the impact of their mentors and the hands-on experiences in shaping their career paths and personal growth.

Sub-question 3

Sub-question three for this study was, "How would quantitative teacher survey data inform the problem of an inadequate number of high school seniors meeting the requirement of South Carolina's "Profile of a Graduate" be solved at Avenger Career Technology Center?" The survey respondents answered 13 Likert-type questions related to the views and practices associated with the level of rigor delivered in the classroom. The researcher calculated descriptive statistics from the teacher's responses. Questions five through 10 were represented on the Likert scale by 1 Never, 2 Some of the time, 3 Often, 4 Almost Always, and 5 Always, while questions eleven through 13 were represented by the yes or no option. The survey was designed to gauge teachers' perceptions of their activities in classroom instruction. Twenty surveys were sent to the teachers, and 18 responded to the questions. Eighty-three percent of the faculty are white. Seventeen percent are African American. Eighty-eight percent of teachers worked in the industry before teaching. Twelve percent of the staff have post-secondary teaching experience before or during their time at the center. Table 6 includes the frequency of responses and means, percentages, and standard deviations for each survey question.

Table 6

Descriptive Statistics for How Teachers View Instructions in the Classroom

Items and Descriptions	1	2	3	4	5	*M*	*SD*
1. I ask students to complete written assignments that require them to cite supporting evidence from the CTE text they read.	2 11%	8 44%	6 33%	2 11%	0	2	2.93
2. I provide opportunities for students to discuss connections between technical materials read and CTE content	0	2 11%	6 33%	4 22%	6 33%	4	2.3
3. I ask students to predict outcomes based on their observations or the information provided.	0	3 17%	5 28%	5 28%	5 28%	5	1.95
4. I ask students to use math to solve complex problems related to their assignments.	1 5%	3 17%	6 33%	3 17%	6 33%	3	1.9
5. I ask students to apply academic knowledge and skills to their assignments.	0	1 5%	5 28%	2 11%	10 56%	2	3.6
6. I ask students to work in teams to complete rigorous assignments.	0	2 11%	6 33%	6 33%	4 23%	4	2.3

Question 1 indicated varying degrees of asking students to cite texts in written assignments, with a significant number doing so. A group of respondents frequently require students to cite text when completing assignments. In Question 2, a third of teachers consistently allow discussions about technical materials, while more than half sometimes or often facilitated such discussions. Question 3 indicated that most respondents ask their students to predict outcomes based on their observations or information provided when working on assignments. Question 4 demonstrated that many respondents incorporate outcome prediction and math problem-solving in assignments. Most teachers encourage applying academic skills to assignments, as highlighted in Question 5. Lastly, Question 6 revealed that many respondents have students working in teams regularly or occasionally.

Discussion

The researcher triangulated data from interviews, a focus group, and a survey and identified several themes addressing how the problem of an inadequate number of high school seniors that meet the requirement of South Carolina's Profile of a Graduate can be solved at Avenger Career Technology Center? Those themes supported empirical research data and theoretical frameworks presented in Chapter Two. In the next chapter, the researcher will offer solutions to improve the number of seniors meeting South Carolina's Profile of a High School Graduate mandate. The solutions are based on previous empirical research studies, theoretical frameworks, and current study findings. After reviewing the empirical literature discussion in Chapter Two, the researcher identified three main themes across all methodologies that corresponded with the research findings: (1) Capstone Project, (2) Student Internship, and (3) Industry Partnership/Mentorship.

Capstone Projects

Past research has shown that students that engage in real-world practical workshops demonstrate their understanding through creativity and collaboration (Brau, 2018). This sentiment aligns with one of Maria's remarks that her "social media work with her local high school football team was displayed during the Friday night's game, which constantly got critique by the local community." Maria said, "Getting critique by the local community made me work hard to produce an excellent product because I felt like someone's child's future was in my hands." Leadership and teachers agreed that apprenticeship-like pedagogical experiences may give students self-direction, which drives motivation (Jang, 2016). Two focus group study participants echoed these sentiments when both described their experiences with research on cancer with a local college professor as life changing. One student said, "I never imagined having a senior project that afforded me to work side-by-side in a college lab environment would be available to me while in high school." Students' perceptions of learning elements lead to higher perceived satisfaction of three needs: relatedness, autonomy, and competence (Kriner et al., 2015). All participants spoke about having to find a mentor in the field of study and presenting their projects to people outside of the building made them feel a sense of ownership. Abdurachmanov (2016) suggested that detailed narrative feedback and constructive criticism help students strategize and progress. One student participant stated, "When parents shared their critique on my video about their student-athlete, it made me strive to improve my work even more." Another participant said, "Getting feedback from local professors and businesspeople in the media field made my documentary much better than what I started with."

However, many focus group participants expressed frustration with the amount of time to finish their projects and not having an opportunity to improve their work after they presented at

the advisory board night. One focus group participant said, “I get good feedback from the industry on my capstone project, but I am out the door starting a new class two days later. I do not have time to improve my work using the feedback I received.” An interview participant's statement aligned with the students when he shared that it took his students at his old campus two years to do what these students are doing in 90 days.

The empirical research data and the current study findings revealed that students with these types of experiences alongside a mentor have a greater chance of meeting the mandate set by South Carolina regarding capstone projects. When teachers are facilitators of classroom work and students work in teams on projects, they seem to take ownership of their learning. Completing a capstone research project during their senior year gives students a sense of preparedness for post-graduation opportunities of their choice.

Student Internship

Stone (2005) noted that students would be better off receiving training and preparation during high school before entering a career with decent wages and opportunities to advance. Similarly, one interview participant said, “Working with adults in the nursing home during my internship made me more confident in the skills we were doing in the classroom.” A leadership interview participant said, “When a local business that has hosted one of our students' interns checks off that skill list with the student in attendance, you can see immediately how the student changed during the nine weeks.” Deming (2015) found that social skills are increasingly valued in the labor market. One student participant said, “Working in my internship with my high school sports teams set me up perfectly since I had two times. I had to wake up at 7:00 o'clock in the morning to be at 8:00 o'clock practice sitting through training and filming weightlifting.”

Several focus group participants credited internships as a catalyst for building social skills and preparing them for post-secondary opportunities.

Barak (2016) found that changes in today's globalized society have shifted demands from acquiring structured knowledge to mastery of skills, often referred to as 21st-century competencies. An interview participant discussed the importance of the process of learning these skills. Administrators develop a training plan with students and employers and create experiences for students to use problem-solving and critical thinking. One administrator said, "we give them the responsibility of being a part of the plan, and they have to work in that as a team member." Likewise, several focus group study participants suggested that the training plan helped them become more confident in problem-solving, critical thinking, and teamwork.

Stringfield and Stone (2017) identified two skills employers look for in a prospective worker: work-readiness skills and character traits. First, internships with local businesses ensure students are ready for the real world after graduation. A focus group member had the same sentiment when discussing working at the local dealership. The focus group participant said, "While working at the dealership, you must make sure everything gets out to the customer when it is scheduled to go. I might rotate the tire instead of waiting for the oil to drain. These are all the things we did in our auto tech class."

Secondly, character traits such as persistence, dependability, self-control, diligence, and self-confidence in the workplace are developed through internships. One focus group participant said, "When working with adults who may be in the early stages of dementia, it requires a lot of persistence to get them to feel comfortable with you giving them the most critical care. I must be there because no one else is scheduled to be there, which leaves that patient without immediate care." Another focus group participant mentioned:

> Having to convince my peers to share their deepest feelings on how adults view them was not easy for me. Asking people in the community to give me permission to film them or on their location helped build self-confidence I did not have before working on this project as an intern.

Another focus group participant added, "I had to work all weekend editing the film created from a game on Friday to have it ready by Monday."

The empirical research and current study findings indicated that internship students gain more than work-ready skills. Although focus group students expressed how internship experiences supported their growth, only four out of the 10 students interviewed had internship experiences.

Industry Partnership/Mentorship

Previous research studies found that when student mentorships are added to vocational education, apprenticeship practices help students to transition to work (Kim & Passmore, 2016). Lev Vygotsky's work suggested that one learns best through interacting with others (Brau, 2018). Brau (2018) and (O'Neill & Short, 2023) indicated that students who engage in real-world, practical workshops to demonstrate their understanding through creativity and collaboration will become good citizens and support themselves.

At ACTC, local business partners have collectively invested over 972 hours of provided information regarding student career and employment opportunities and have invested 1.5 million dollars in equipment and financial donations to move programs to the next level. The business partners have served 1,056 hours on the advisory board, providing program recommendations, internship guidance, and feedback to assist curriculum and skill development. These business partners have invested 8,360 hours mentoring students by helping them while

working toward mastering industry skills and engaging in real-world experiences (Anderson Institute of Technology Leadership Team, 2019). One interview study participant stated:

> I feel like everything that I do is laying the groundwork and building real-life scenarios and putting our students in situations where they must be ready to go into the world either as a high school graduate that's matriculated toward college enrollment or through the workforce or through military but all of these things that are within the profile of the South Carolina graduate enhance who they are as an individual.

Another interview participant said her work with business and industry is essential to student growth and went on to say, “I’ve watched student body language, attitude, and confidence change at the end of their nine-week internship.” A focus group study participant said, “I rebuilt an engine for my capstone project. This could not have been possible without my mentor.”

The empirical research in Chapter Two and current study findings revealed how important industry partnership/mentorship is to student growth. The leadership participants are aware of its impact on students. Students right now only have access to partners during the career fair that is held on campus, which leads to other students not having a chance to interact or have an internship experience. Leadership may want to explore asking other industries to participate because of its effect on the students they serve.

Theoretical Literature Discussion

The theoretical frameworks that guided this study were Vygotsky’s (1962) social constructivist theory and Dewey's (1929) and Piaget's (1980) constructivist theory. Vygotsky’s work is mainly tied to the social aspects of learning through experiences. John Dewey’s ideas were in line with Piaget’s; Dewey believed that children are led to experimentation when engaged in activities and interest in their environment (Beckett, 2018). Piaget suggested that

when learning occurs, children better understand how the external world fits their new experiences and display the process by which persons acquire a group's social and psychological characteristics (Brau, 2018). This aligns with themes regarding capstone projects, internships, and industry partnerships/mentorships. The constructivist theory uses learner-centered principles where learners work collaboratively with others, which supports the need for the emerging themes as identified in this study.

John Dewey's Constructivist Theory

A constructivist educator uses learner-centered principles, where learners work collaboratively in the classroom environment. Scholars like Jony (2016) and Mentz and Van Zyl (2018) defined learning as constructing meaning; it is how learners make sense of their experience. Mayombe (2020) pointed out that learners benefit from constructivism because they come to class with many life experiences. According to Bada (2015), the constructivist theory of learning has its historical roots in the work of Dewey (1916), Vygotsky (1962), and Piaget (1980).

Eighty-eight percent of the survey respondents said they allow their students to work in teams while completing rigorous assignments. Similarly, when the focus group participants were asked to describe a project, they completed that required them to create a solution to a real-world problem, all focus group participants gave credit to being able to work in a team environment, which made challenging projects manageable. In these projects, each group member contributed and brought their strengths to the project. During Dr. Larry's interview, he said having mentors gives students so many rich life experiences while still in high school that will undoubtedly leave an impression on them for the rest of their lives.

Lev Vygotsky's Social Constructivism

Lev Vygotsky (1978) suggested that students learn best when interacting with others. The critical components of social constructivism theory summarized by Brau (2018) and relevant to this study were the social encounters with others central to student learning and knowledge gained through their experiences. The researcher of this study found that students gained confidence in their skills when completing a capstone project or internship.

In the survey conducted among teachers, 94 percent responded affirmatively when asked if they provided opportunities for students to develop their skills through work-based learning experiences. Clearly, there is a significance placed on practical, hands-on learning by the participating educators; this was also displayed through many focus group participants' experiences. One participant stated that her confidence in her skills had increased by 100 percent due to her practical experience. Working alongside professionals in a real-world setting allowed her to grow and develop her abilities. Another described the invaluable experience of working with a leading college researcher in cancer. This collaboration instilled in them a newfound confidence to pursue a medical career. Their exposure to the research environment and the guidance of an expert mentor profoundly influenced their career aspirations. The skills learned were not just job-related experiences but also practical skills for life. One student participant expressed initial hesitation in speaking with strangers until they were required to find a mentor for their capstone project. This experience challenged their comfort zone and ultimately helped the participant develop the confidence to engage with unfamiliar individuals.

Brau (2018) referenced Bandura's concept that learners can actively monitor, control, and shape their learning environment and behavior in alignment with predefined goals. This notion emphasized empowering students to take ownership of their learning journeys. Multiple participants in the focus group acknowledged the stark contrast between their experiences and

those of their friends who had not pursued similar pathways and opportunities by their senior year. These participants expressed intense clarity regarding their career aspirations, unlike their peers who lacked comparable experiences. The proximity to graduation further emphasized the value and impact of their practical learning experiences.

One interview participant reinforced that students who actively take ownership of their learning are more likely to take ownership of their results, behavior, and future careers. This sentiment underscored the belief that empowering students to be proactive and engaged learners yields positive outcomes in various aspects of their lives. The survey responses, focus group discussions, and interview insights highlighted the transformative power of work-based learning experiences. From increased confidence and clarity of career goals to developing essential skills, students who engage in practical, real-world opportunities are well-positioned for success and personal growth.

Constructivism

The three foundational theorists of constructivism are Jean Piaget, Lev Vygotsky, and John Dewey. Vygotsky's work is mainly tied to the social aspects of learning through experiences, while John Dewey's ideas correspond to Piaget's and Vygotsky's work (Brau, 2018). Constructivist theory suggests that knowledge is best gained through reflection and active mental construction (Mascolo & Fischer, 2005). An early constructivist, John Dewey (1929), believed that children are likely to experiment when engaged in activities and interested in their environment (as cited in Beckett, 2018). According to Pica (2020), when children are curious about their environment, they are eager to explore it.

Piaget's (1980) theory explores how children develop. Piaget (1980) identified two processes on how learning occurs rather than what influences learning, accommodation

(reframing one's mental representation of the external world to fit new experiences) and assimilation (the process by which a person or persons acquire the social and psychological characteristics of a group), which are vital in the interaction between experiences and ideas (Brau, 2018). As previously noted, some interview participants shared the importance of their role in providing opportunities to support student development. Several interview and focus group participants commented on the benefits of having industry partnerships, mentorships, and work-based learning experiences available to students.

Summary

The researcher conducted a study using triangulated data from interviews, a focus group, and a survey to address the issue of a lack of high school seniors meeting South Carolina's Profile of a Graduate requirements at Avenger Career Technology Center. Several themes emerged, including Capstone Projects, Student Internships, and Industry Partnership/Mentorship, which were supported by empirical research and theoretical frameworks.

Capstone Projects were found to be valuable, as they allowed students to demonstrate their understanding through creativity and collaboration. Students working on such projects felt a sense of ownership and were motivated to excel. Teachers and leaders also recognized the benefits of such pedagogical experiences. Student Internships were seen as essential for preparing students for the workforce by providing real-world training and building social skills. They helped students gain work-ready skills and develop character traits like persistence and self-confidence. Industry Partnership and Mentorship programs were seen as crucial for student growth. Local businesses invested time and resources mentoring students, providing valuable, real-world experiences. This partnership had a significant impact on students' development.

The study was guided by theoretical frameworks, including Vygotsky's social constructivist theory and Dewey's (1929) and Piaget's (1980) constructivist theories. These frameworks emphasize the importance of hands-on, collaborative learning experiences in constructing knowledge and developing skills. The research findings highlighted the significance of practical, real-world experiences and mentorship in preparing high school seniors for graduation and future success.

CHAPTER FIVE: CONCLUSION

Overview

This applied study aimed to solve the problem of an inadequate number of high school seniors at Avenger Career Technology Center that meet the requirement of South Carolina's Profile of a Graduate and provide leaders within the building with a proposed solution to address the problem. Although the state provides a framework for a Profile of a Graduate, the skills or characteristics are not usually assessed within the district's buildings. The chapter continues with a discussion about the resources and funds needed, along with the roles and responsibilities of the stakeholders needed to implement the solution. A timeline for execution and completion of the resolution, along with possible implications, is also included in Chapter Five. Chapter Five concludes with a summary of the solution. In this chapter, the researcher details the problems identified through the research and proposes solutions. Solutions include quantifying the leadership team and students' experiences with the characteristics of the SC mandate.

Restatement of the Problem

The problem addressed was an inadequate number of high school seniors at Avenger Career Technology Center that meet the requirement of South Carolina's Profile of a Graduate.

Proposed Solution to the Central Question

The researcher analyzed qualitative data through interviews, a focus group, and quantitative data through a survey to answer the central research question: "How can the problem of an inadequate number of high school seniors that meet the requirement of South Carolina's "Profile of a Graduate" be solved at Avenger Career Technology Center?" Common themes connected to the empirical data and the theoretical frameworks were identified. As a result, three noticeable solutions were identified, including more capstone project opportunities, student

internship options, and business partnerships/mentorships.

Capstone Projects

Experiential learning suggests that an individual will learn from doing or partaking in an activity's direct experience (Gross et al., 2017). Drawing from John Dewey's (1929) ideas, Kolb and Kolb (2005) popularized the experiential learning theory and the idea that an individual will learn best by doing. Under South Carolina's initiative, students who demonstrate world-class knowledge, skills, and life and career characteristics are college and career-ready (Young et al., 2017; SC EOC, 2016). Most students' capstone projects usually last a semester during their junior or senior year. Extending capstone project time for students aligns with the empirical research discussed in Chapter Two. Theoretical aspects of constructivism maintain that learning occurs when students can experience meaningful activities in a realistic setting with opportunities to process and reflect on what they learned and how the new knowledge relates to previous learning or experiences (Brau, 2018). Students are asked to present the projects as a group or individually during the all-business advisory board meeting at the school.

The administration team plans one all-business advisory board meeting in the fall and one in the spring, typically before Christmas break and the end of school. The focus group participants spoke about how capstone projects increase their motivation, desire to work with others, and desire to pursue the pathway after graduation. Students who engage in real-world, practical workshops to demonstrate their understanding through creativity and collaboration will become good citizens and support themselves (Brau, 2018; Johnson et al., 2012). One interview participant said that capstone projects help students own their learning, results, and behavior, allowing them to own their careers. One focus group participant said, "Working with elderly people where they are totally dependent on your skills makes you take your work seriously."

Another mentioned that “My film documentary made me respect my work and my peers' time, talents, and grit they had. I never knew they had until they sat before the camera and shared their story.”

Focus group participants’ experiences aligned with the major topics in Chapter Two. One participant in the focus group said, “My capstone allowed me to conduct research at a local university research lab on how to only kill the cancer cells and not healthy cells. This is when my passion for research really surfaced.” Students spoke with confidence when sharing their experiences with capstone projects. During the focus group, several participants shared that they persevered, learned to work in a team, gained more knowledge, and felt ready for college or career graduation.

Starting Capstone Projects in The First Year

The researcher recommends that the center's administration introduce the capstone research project in the first year of students' attendance. This suggestion arose during the discussions held with participants. Throughout these conversations, the participants consistently emphasized important qualities such as perseverance, teamwork, communication, critical thinking, problem-solving, creativity, and innovation when sharing their experiences with capstone projects (SC EOC, 2015). However, the discussions always seemed to end with a shared sentiment that they could have mastered their projects if they had been given more time to work on them, especially after receiving feedback from experts in their respective fields of study.

During the interviews, participants expressed their awe at the remarkable feat of students taking on such an involved and complex process within a relatively short period. The intensity of the capstone project was recognized and appreciated by the interviewees, who acknowledged the challenges and demands it placed on the students. Based on these discussions and insights, the

researcher strongly advocates implementing the capstone research project earlier in students' academic journey at the center. The end of each pathway is typically research-based by nature. Students could define a problem in their first course, find a mentor in the second, research in the third, and produce a solution in the fourth. By doing so, students would have more time and opportunity to refine their projects, incorporating feedback from experts in their fields and reaching a level of mastery that they feel confident about. This adjustment would provide a more conducive environment for students to fully engage in the capstone project, allowing them to showcase their abilities and achieve higher levels of success.

The researcher also suggests that teachers should receive professional development focused on delivering instruction within three hours. In today's globalized society, there has been a shift in the skills required from acquiring structured knowledge to mastering skills commonly known as 21st-century competencies. However, implementing new practices is often challenging, and many teachers still rely on teacher-centered and lecture-based instruction methods.

To bridge the gap between research on learning and educational practices, Ertmer and Newby (1993) argued that instructional design plays a crucial role. During the interviews with participants, one instructional design method expectation was discussed, wherein the teacher delivers a lecture for 10 minutes and facilitates the instruction for the remaining time. This approach also seemed to introduce a new way of thinking for the other interview participants.

To effectively implement this instructional design methodology, it is recommended to provide well-structured professional development opportunities supported by coaching. Such professional development programs would help ensure that all teachers understand and embrace the instructional design approach, enabling them to effectively deliver instruction within the allocated three-hour timeframe. By equipping teachers with the necessary knowledge and skills,

they can confidently adapt their instructional practices to meet the demands of today's educational landscape and promote practical learning experiences for their students.

Student Internships

Past research has found that students who have experience with work-based learning activities, post-secondary credentials, and dual credit opportunities while in high school are prepared for industry and post-secondary education (Carnevale et al., 2015; Castellano et al., 2017; Deming, 2015; Kim et al., 2016). In other words, students' mental abilities are shaped when they interact with others. Increasing the number of students who can experience internships aligns with the theoretical and empirical research discussed in Chapter Two. One student noted with noticeable excitement, "My cosmetology nine-week internship with a local salon landed me a job doing what I love to do. I feel like the different situation I have been put in makes it easier for me to talk to people." Another student stated, "I honestly was unsure I wanted to pursue medicine. My local adult care facility internship solidified why I chose this field."

Increasing Number of Student Internships

South Carolina's Profile of a High School Graduate mandate states students should have world-class knowledge, world-class skills, and life and career characteristics (S.C. Department of Employment & Workforce Business Intelligence Department, 2019). Lev Vygotsky's (1978) work suggests that one learns best through interacting with others (as cited in Brau, 2018). In other words, students' mental abilities are shaped when they interact with others. Increasing the number of students who can experience internships aligns with the theoretical and empirical research discussed in Chapter Two. Ninety-five percent of the teachers responded that students have opportunities to master employability skills through work-based learning experiences. One student noted with noticeable excitement, "My media marketing nine-week internship with the

local high school sports teams landed me a scholarship doing what I love to do. I feel like the different situation I have been put in makes it easier for me to talk to people." Another student stated, "I never thought college was in the cards for me until a local dealership representative shared the possibilities with our class."

Business Partnerships/Mentorships

In their study, Mayombe (2020) examined learners' perceptions of constructivist teaching and learning principles within non-formal education centers in South Africa, specifically KwaZulu-Natal. The researchers found that facilitators in these centers employed constructivist theory while instructing learners. The students engaged in collaborative learning, participating in group activities and work projects assigned by their teachers. As Pai and Mallya (2016) described, collaborative learning involves exchanging ideas and skills among peers. During interviews, participants expressed thoughts aligned with the research findings, emphasizing their roles within the education center. One interview participant described their work as focusing on business-industry community partnerships and connecting these partnerships with students to provide services within the center. The participant also mentioned providing internships and apprenticeships for students upon completing their career pathway or four courses within the center. The participant emphasized the direct connection between course completion and internship opportunities.

Another interviewee highlighted the significance of exposing students to real-life scenarios and working closely with them through internships, apprenticeships, job shadowing, and mentoring opportunities, all directly linked to the center's partnerships. They emphasized that these experiences helped students develop their body language, field knowledge, confidence, self-esteem, and work ethic. Additionally, hearing positive feedback from employers and

community partners about the student's performance and growth during these opportunities further reinforced the value of their work.

Several interview participants mentioned the importance of assigning mentors to students when they have projects or internships. They emphasized that the mentorship experience provided valuable life experiences that students might not have encountered otherwise. Mentors played a crucial role in addressing the students' questions related to their chosen career pathways.

However, despite the significant efforts and contributions from industry partners, interview participants acknowledged the challenges of accommodating more than two students per nine weeks due to limited resources. While business partners had donated over 1.4 million dollars and dedicated over 800 hours to mentorship, it remained insufficient to meet the needs of all the seniors served by the center (Anderson Institute of Technology Leadership Team, 2019.

The interviews provided insight into the practical implementation of constructivist principles in the education center, focusing on collaborative learning, real-world experiences, and mentorship. The participants acknowledged the positive impact of these practices on student development and success, although resource constraints presented ongoing challenges in expanding opportunities for all students.

Increasing Business Partnerships

Increasing business partnerships resulting in real-world opportunities for students is supported by research. In fact, research has provided evidence that work experience significantly prepares individuals from low-income areas, especially those in impoverished neighborhoods, to enter the job market successfully (Kazis, 2005). One participant in the study highlighted this impact, expressing his surprise at earning a substantial income by working on cars and how it

provided newfound opportunities to support family. The focus group participants expressed gratitude for the transformational effects of work experience on their lives.

Stringfield and Stone (2017) identified two critical sets of skills that employers seek in potential employees. The first set includes work readiness skills such as effective communication and navigating workplace relationships, often highlighted as crucial skills in employer surveys (Emsi, 2019). The second set comprises character traits including persistence, dependability, self-control, curiosity, diligence, grit, and self-confidence, which are considered even more important than sheer intellectual ability when achieving success in the workplace (Stringfield & Stone, 2017). The South Carolina Department of Education Oversight Committee's (2018) perspective aligns with Stone's research findings. During interviews and focus group discussions, participants shared their experiences, corroborating the research findings. However, both groups acknowledged that the opportunities with local businesses could not keep up with the high demand from students seeking work-based learning opportunities.

Considering these findings, the researcher recommends that the leadership team at the center explore opportunities within the campus itself. Many teachers have their own businesses and would likely be open to hosting students for work experiences. Additionally, pathways such as Media Art and Design, Cosmetology, Agriculture, and Horticulture could consider establishing school-based enterprises to provide students with valuable work-based learning opportunities while attending the center. By exploring these avenues, the center can enhance the availability of meaningful work experiences for students, enabling them to further develop the necessary skills and traits employers seek.

Increasing Mentorship in the Classroom Setting

The researcher recommends the expansion of mentorship programs within the center. When asked about their experiences with mentorship, focus group participants enthusiastically shared how mentorship had helped them become college and career ready. They highlighted various aspects of mentorship that had significantly impacted their development, including working together on projects, engaging in phone calls, receiving guidance on college decisions, speaking to students, providing tools for state competitions, receiving just-in-time expert advice, sharing industry experiences, and helping to develop their skills. The support they received from their mentors played a crucial role in building their confidence and enabling them to showcase their skills to the local community. One participant mentioned that her mentor's support was instrumental in the successful passing of her industry certification exam.

The University of Pittsburgh is an example of the effectiveness of mentorship and peer support in helping K-12 students transition into research and science pathways. Through highly interactive and engaging lectures, undergraduate and graduate students from the university engage with students from the third through 12th grade (Manson et al., 2015). Focus group participants who had similar interactions with mentors and peers expressed that these experiences had significantly contributed to their success in becoming college and career ready.

Based on these findings, the researcher recommends expanding mentorship programs within the center. The positive impact of mentorship on students' readiness for college and careers cannot be understated. By providing opportunities for students to engage with mentors who can offer guidance, support, and real-world insights, the center can empower students to navigate their educational and career pathways with greater confidence and success.

Resources Needed

At ACTC, the need for time and funds is evident to enhance student's ability to meet the Profile of a Graduate. The unique schedule at the center requires teachers to teach for three hours, with one session in the morning and another in the afternoon, with a 40-minute lunch break between the sessions. The administration emphasizes a teaching approach that limits lectures to 10 minutes, with the remaining time focused on facilitating student learning.

To ensure students are prepared for their careers, it is necessary for them to either pass an industry certification exam or complete 40 hours of work within their chosen industry before graduation. Each skill requirement must be checked off as it is met, necessitating a career specialist's frequent visits to the worksite. However, one person's capacity limits this opportunity to approximately 12 students every nine weeks, sometimes even fewer. Only a small fraction of the 300 seniors at the center can benefit from working directly with industry professionals within their chosen pathway. Considering these challenges, the researcher recommends several actions that can be taken to support the proposed solutions to the central question:

1. Start Capstone Projects in the First Year: The center's administration should introduce the capstone research project in the first year of students' attendance. The center’s administration should review current curriculum lay out to identify adjustments needed to support capstone projects in the first year. This early introduction will allow students more time to refine their projects, incorporate feedback, and reach mastery, enhancing the quality of their work and overall learning experience.
2. Provide Professional Development for Teachers: Teachers should receive professional development focused on delivering instruction within three hours. This training should

help teachers adapt their instructional practices to meet the demands of practical learning experiences and promote active engagement.

3. Increase the Number of Student Internships: The center should strive to increase the number of student internships. Research supports the value of work-based learning experiences in preparing students for post-secondary education and industry careers.
4. Expand Business Partnerships: The center should explore opportunities to expand business partnerships, especially within the campus. Teachers with businesses could host students for work experiences, and school-based enterprises could be established in relevant pathways to provide more meaningful work-based learning opportunities.
5. Enhance Mentorship Programs: Mentorship programs within the center should be expanded. These programs significantly impact students' readiness for college and careers. More opportunities for students to engage with mentors can boost their confidence and success.
6. Allocate More Resources: The center needs additional resources, including time and funds, to support student readiness for the Profile of a Graduate. This may involve hiring more career specialists to oversee work-based learning experiences to ensure that more students benefit from industry engagement.

The researcher suggests implementing capstone research projects in the first year of students' attendance. This change aligns with empirical research and students' desire for more time to master their projects and incorporate feedback. Previous studies highlight the positive outcomes of students engaging in real-world practical workshops, emphasizing creativity and collaboration, which aligns with the experiences shared by participants (Brau, 2018). One focus group participant's involvement in social media work with a local high school football team,

subject to community critique, motivated her to excel due to her sense of responsibility for the athletes. Jang's (2016) work aligned with focus group and leadership participants when sharing the value of apprenticeship-like pedagogy, fostering self-direction and motivation. One of the focus group participants shared that involvement in projects, such as cancer research alongside college professors, was life-changing and provided unique opportunities not typically available in high school.

Research suggests that students' perceptions of their learning experiences, including relatedness, autonomy, and competence, contribute to higher satisfaction levels, reflecting the sentiments expressed by all participants (Kriner et al. 2015). Detailed narrative feedback and constructive criticism were instrumental in helping students improve their work, as exemplified by their reactions to feedback from parents and local professionals (Abdurachmanoy, 2016). By introducing capstone projects earlier, students will have a better chance to refine their work and reach a higher level of expertise, leading to more successful outcomes.

To facilitate effective instruction within the center's unique schedule, it is recommended that teachers receive professional development focused on delivering instruction within a three-hour timeframe. This training should enable teachers to adapt teaching methods to emphasize practical learning experiences and active student engagement, aligning with 21st-century competencies.

The study draws from Ertmer and Newby's instructional design principles to bridge the gap between educational research and classroom practices (Newby, 1993). Specifically, this research suggests adopting an instructional approach where teachers deliver a 10-minute lecture and facilitate instruction for the remaining time, a concept that intrigued interview participants.

For successful implementation of this instructional design methodology, the researcher recommends well-structured professional development programs supported by coaching. These initiatives aim to ensure teachers grasp the instructional design approach and confidently adapt their teaching methods to meet today's educational demands. Ultimately, this shift in teaching practices is expected to promote practical learning experiences for students. These opportunities should be made accessible to as many students as possible.

Building on the research that supports the value of work-based learning experiences, the center should work to increase the number of student internships. Providing students with more opportunities to gain real-world experience will better prepare them for post-secondary education and career success.

The empirical research underscores the value of work-based learning, post-secondary credentials, and dual credit opportunities for high school students in preparing them for both industry and post-secondary education (Carnevale et al., 2015; Deming, 2017; Kim et al., 2016; Sundell, 2017). However, several focus group participants acknowledged that limited work-based learning opportunities with local businesses have been challenging.

To overcome this challenge, it is recommended that the center explore opportunities within its own campus. This could involve teachers with their own businesses hosting students for work experiences and the establishment of school-based enterprises in relevant pathways. These initiatives aim to expand meaningful work experiences for students, ensuring they have access to valuable, hands-on learning opportunities.

Furthermore, expanding mentorship programs within the center is highly recommended. Mentorship has been proven to have a significant impact on students' readiness for both college and careers. Focus group participants shared their favorable experiences with mentorship,

emphasizing its role in preparing them for college and careers. Focus group participants discussed various aspects of mentorship that significantly impacted their development, such as collaborative projects, guidance on college choices, communication with mentors, assistance with state competitions, timely expert advice, sharing of industry insights, and skill development. Participants noted that mentor support was crucial in building their confidence and showcasing their abilities to the local community. One participant credited their mentor's support for passing an industry certification exam.

The University of Pittsburgh is an example of effective mentorship and peer support in assisting K -12 students in transitioning to research and science pathways. The university's program involves interactive and engaging lectures conducted by undergraduate and graduate students, benefiting third to 12th-grade students. Focus group participants who had similar interactions with mentors and peers expressed how these experiences significantly contributed to their readiness for college and careers.

In summary, the center should leverage its resources to provide more work-based learning opportunities and prioritize expanding mentorship programs to empower students to navigate their educational and career paths with greater confidence and success. To implement these proposed changes, securing adequate funding is crucial. The center's leadership team may need to explore various funding sources, grants, and partnerships to obtain the necessary resources to hire a CDF and provide teachers with professional development opportunities. The goal is to allocate the required funds strategically to support the center's growth, enhance student opportunities, and ensure the successful implementation of career development initiatives. By implementing these recommendations, the center can better prepare its students to meet the

Profile of Graduate requirements and equip them for successful transitions into college and careers.

Funds Needed

Recognizing the need for additional resources and funding to manage and expand student internships, the researcher proposes hiring an additional Career Development Facilitator (CDF) at an estimated cost of $45,000. Exploring funding options, such as Perkins funds or grants, is essential to support this position. Additionally, conducting professional development for teachers, including coaching, at approximately $3,500 per year, is crucial to ensure successful instructional implementation. Seeking external funding sources, grants, and partnerships will be essential to secure the necessary resources for these initiatives.

This Roles and Responsibilities

At ACTC, there is a pressing need for additional support staff and training to ensure that more seniors are successful in their chosen pathway.

Career Development Facilitator

The CDF's responsibilities include supporting students, teachers, and the center's mission. The CDF would organize and deliver professional development workshops on career development and guidance for teachers and students engaged in work-based learning. Additionally, the CDF would collaborate with industry in supporting more students in internships with local industries. The CDF would also work to expand business partnerships that will encompass mentorships for the center's students.

Working closely with the Center's Director of Student Services, the CDF would assist in identifying and assessing students who have not yet met the state's graduation requirements. Furthermore, they would help schools plan and develop parent information sessions on career

development, fostering greater parental involvement in the student's career readiness journey. Finally, the CDF would visit the industries where students are interning to assess their progress and check off the skills they have acquired.

Leadership Team

The leadership team must plan and allocate resources for professional development sessions to support the teachers at the center to become better mentors/delivery of content in the classroom. This planning process could occur during in-service days during the school year, and funding for the sessions could come from various sources such as Perkins funding, grants, and state funds. It is crucial for the leadership team to actively participate in these training sessions to demonstrate their support and commitment to the teachers' professional growth.

In addition, the leadership team may also want to consider hiring an external coach specializing in research-based strategies for engaging students while facilitating lessons. This coach would provide expertise and guidance to the teachers, helping them navigate the unique challenge of delivering effective instruction within a 10-minute lecture format.

By hiring a second CDF and providing comprehensive professional development, ACTC can strengthen its support system for students, enhance teacher effectiveness, and ensure that more seniors have access to valuable internship opportunities. These strategic actions will contribute to students' overall success and achievement at the center.

Timeline

To solve the problem of an inadequate number of high school seniors that meet the requirement of South Carolina’s Profile of a Graduate at Avenger Career Technology Center, it is recommended that the following timeline be followed for two years (see Table 7). In year one, the researcher will work with the leadership team to begin discussions and workshops to

introduce the idea of initiating capstone projects in the first year, with curriculum adjustment in mind. After the third month, the researcher and leadership team will refine the plan for early capstone projects, focusing on incorporating expert feedback. Throughout the seventh and ninth months, the researcher and leadership team will develop a professional development program for teachers that will support them with mentorship/delivering instruction within three hours, starting with a small group of educators. During the final two months of year one, the researcher and leadership team will assess the initial outcome of the pilot program and make necessary adjustments based on participant feedback.

In the first quarter of year two, the leadership team will expand the professional development program to a broader faculty audience and provide a coach for teachers to adopt the new instructional approach. The Career Development Facilitator will begin efforts to increase the number of student internships by collaborating with local businesses and educators in the fourth month. In the third quarter of year two, the CDF will explore opportunities to expand business partnerships within the campus, including the involvement of teachers with businesses and school-based enterprises. In the last two months of year two, the leadership team, in collaboration with the CDF and faculty, will expand mentorship programs involving faculty and external mentors and allocate additional resources to support students' readiness for college and careers.

Table 7

Implementation of Timeline

Implementation of Solutions	Spring/Fall 2024
With curriculum adjustment in mind, the researcher will work with the leadership team to begin discussions and workshops to introduce the idea of initiating capstone projects in the first year.	1-3 months
The researcher and leadership team will refine the plan for early capstone projects, focusing on incorporating expert feedback.	4-7 months
The researcher and leadership team will develop a professional development program for teachers that will support them with mentorship/delivering instruction within three hours, starting with a small group of educators.	8-10 months
The researcher and leadership team will assess the initial outcome of the pilot program and make necessary adjustments based on participant feedback.	11-12 months
Implementation of Solutions	**Spring/Fall 2025**
The leadership team will expand the professional development program to a broader faculty audience and provide a coach for teachers to adopt the new instructional approach.	1-3 months
The Career Development Facilitator will begin efforts to increase the number of student internships by collaborating with local businesses and educators.	4-6 months
The Career Development Facilitator will explore opportunities to expand business partnerships within the campus, including the involvement of teachers with businesses and school-based enterprises.	7-9 months
In collaboration with the CDF and faculty, the leadership team will expand mentorship programs involving faculty and external mentors and allocate additional resources to support students' readiness for college and careers.	10-12 months

This two-year timeline outlines a comprehensive strategy to improve students' preparedness for their academic and professional journeys by implementing early capstone projects, enhancing teaching practices, providing more internship opportunities, fostering

business partnerships, expanding mentorship programs, and allocating essential resources.

Solution Implications

The researcher conducted this study to address the issue of an insufficient number of seniors that meet the Profile of a Graduate at Avenger Career Technology Center. Several solutions were presented based on past empirical research data, theoretical frameworks, and the researcher's study findings from qualitative and quantitative data analysis. The successful implementation of the proposed solution offers several potential benefits. First, starting Capstone Projects in the first year of students' attendance allows students ample time to refine their projects, incorporate feedback, and reach a higher level of mastery, ultimately enhancing the quality of their work and overall learning experience. Second, providing professional development for teachers focused on mentoring/delivering instruction within three hours is crucial. This training equips teachers to adapt their instructional practices to promote active engagement and meet the demands of practical learning experiences.

Additionally, increasing the number of student internships is essential, as research supports the value of work-based learning experiences in preparing students for post-secondary education and industry careers. These opportunities should be made accessible to as many students as possible. Moreover, expanding business partnerships, particularly within the campus.

Teachers with their businesses could host students for work experiences, and school-based enterprises could be established in relevant pathways to provide more meaningful work-based learning opportunities. Furthermore, enhancing mentorship programs within the center is vital, as these programs significantly impact students' readiness for college and careers. Focus group participants shared opportunities for students to engage with mentors, which helped boost their confidence and success.

Lastly, allocating more resources, including time and funds, is necessary to support student readiness for the Profile of a Graduate. This may involve hiring more career specialists to oversee work-based learning experiences, ensuring more students benefit from industry engagement. One negative implication of this study was the amount of money and human capital it may cost to support these efforts. Asking the district to expand a tight budget is difficult, especially when three separate districts are involved.

Evaluation Plan

The researcher proposes several action steps to assess the effectiveness of the solution to the problem. A combination of goal-based, outcome-based, and formative evaluations will be used. The committee will send a quarterly survey to all staff to assess their perceptions of more capstone project opportunities, student internship options, and increasing business partnerships/mentorships.

Teachers will be asked open-ended and close-ended questions to determine their thoughts on the solutions that address the quality professional development delivery of instruction/mentorship. The closed-ended questions take little time to complete. The open-ended questions allow educators to express opinions or ideas, not closed-ended questions.

Similarly, after each meeting session, school leaders will be asked to share any concerns they may have from the last time they met. Group discussions allow leaders to brainstorm and share ideas that may be valuable for successful future implementation. The researcher will be responsible for ensuring the assessments are created and implemented.

Limitations

Although this study aimed to address the issue of seniors not meeting the South Carolina mandate at Avenger's Career Technology Center, it had several limitations that should be

acknowledged. One of the main limitations was the small and narrow scope of the sample size. Due to limited resources, only one researcher was responsible for analyzing the data, further restricting the sample size.

Another limitation was that the study focused solely on one, multidistrict career center, thereby limiting the generalizability of the findings to other centers across the state. However, the researcher believes the study findings could still be relevant and applicable to centers with similar demographics within the county or even across counties in South Carolina.

It is important to note that the study's findings may not represent centers with different demographics or the entire state. Additionally, the researcher acknowledges the potential bias in participants' responses due to their familiarity with the researcher's role at the site. Participants may have been inclined to provide more favorable or less candid responses.

To address these limitations, future research could include a more diverse sample size involving multiple centers within and outside the county. This would allow for a broader examination of the issue and provide a more comprehensive understanding of seniors meeting the South Carolina mandate. Furthermore, including centers from various regions of the state with different demographics would enhance the generalizability of the findings and offer a more holistic perspective. Despite these limitations, the researcher remains confident that the study's findings and proposed solutions have the potential to benefit centers with similar demographics and provide valuable insights into improving the graduation rates of seniors across South Carolina.

Summary

This applied research study aimed to solve the problem of not enough seniors meeting the High School Graduate Profile at Avenger Career Technology Center. The researcher triangulated

qualitative data from leadership interviews, student focus groups, and quantitative data through surveying teachers. The three main themes that address the central question of how the problem of an inadequate number of high school seniors that meet the requirement of South Carolina's "Profile of a Graduate" be solved at Avenger Career Technology Center included more capstone project opportunities, student internship options, and increasing business partnerships/mentorships.

Capstone projects, rooted in experiential learning, align with South Carolina's college and career readiness initiative. They typically span a semester during a student's junior or senior year and culminate in presentations to an advisory board. While capstone projects enhance motivation and readiness, students often feel time-constrained for improvement. Initiating capstone projects in the first year, as recommended by participants, could provide students with more time to refine and master their projects.

Teachers should undergo professional development focused on mentorship/delivering instruction within three hours. This aligns with the shift from structured knowledge to 21st-century competencies. Instructional design, such as the 10-minute lecture model, can bridge the gap between research and practice, enhancing practical learning experiences.

Increasing the number of student internships is essential. Research shows that work-based learning experiences prepare students for post-secondary education and careers. However, limited resources pose challenges in accommodating all students. Teachers and industry partners are pivotal in facilitating these internships, offering students real-world experiences that boost their employability skills and career prospects.

Expanding business partnerships and mentorships within the center is crucial. Constructivist principles of collaborative learning and real-world experiences align with students'

and educators' experiences. While existing partnerships have been valuable, they face limitations in accommodating all students due to resource constraints. Exploring opportunities within the campus and encouraging teachers with their businesses can expand meaningful work-based learning experiences. Similarly, enhancing mentorship programs provides students with guidance, support, and real-world insights, empowering them to confidently navigate their educational and career pathways.

In conclusion, the researcher found that implementing these recommendations can improve capstone projects, instructional practices, internships, business partnerships, and mentorship programs, ultimately enhancing students' readiness for college and careers.

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APPENDICES

APPENDIX A: Institutional Review Board Approval

Date: 3-10-2023

IRB #: IRB-FY21-22-452
Title: INCREASING THE NUMBER OF HIGH SCHOOL SENIORS MEETING THE SOUTH CAROLINA "PROFILE OF A GRADUATE" MANDATE
Creation Date: 11-21-2021
End Date:
Status: Approved
Principal Investigator: Cecil Bonner
Review Board: Research Ethics Office
Sponsor:

Study History

Submission Type Initial	Review Type Expedited	Decision Approved

Key Study Contacts

Member Tracey Pritchard	Role Co-Principal Investigator	Contact [redacted]
Member Cecil Bonner	Role Principal Investigator	Contact
Member Cecil Bonner	Role Primary Contact	Contact

APPENDIX B: Approval From site Executive Director

[redacted]

Mr. Cecil Bonner,

This letter confirms permission for you to conduct surveys and interviews on the [redacted] campus among students and faculty. No names of faculty or students can be displayed in any surveys or research and responses must be anonymous.

Good luck with your research and the pursuit of your graduate studies.

With Regards,

[redacted]

Executive Director

[redacted]

September 8, 2021

[redacted]

APPENDIX C: Informed Consent for Interviews

Administrator Consent

Title of the Project: INCREASING THE NUMBER OF HIGH SCHOOL SENIORS MEETING THE SOUTH CAROLINA "PROFILE OF A GRADUATE" MANDATE
Principal Investigator: Cecil L Bonner, School of Education graduate student, Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must have worked in a career and technical setting (secondary or postsecondary) for at least two years. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to participate in this research.

What is the study about and why is it being done?

The purpose of the study is to solve the problem of an inadequate number of high school seniors at Avenger Career Technology Center meeting the requirement of South Carolina's Profile of a Graduate and to formulate a solution to address the problem. Students performed below the state average in college and career benchmarks in the district Avenger Career Technology Center.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following things:

1. Participate in an interview, answering seven open-ended questions face to face or by google meet. The interview will last between thirty minutes to one hour. Interviews will be audio recorded using a Microsoft Surface Tablet and iPhone.
2. Interview transcripts will be sent to participants for review.
3. The participants maybe asked to provide clarification to any follow-up questions the researcher may have.

How could you or others benefit from this study?

Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include contributing to the literature, providing information for practitioners, and improving practices and policies. The results of the study could be useful for Avenger administrators, teachers, students, counselors, and district leadership and increase students' success.

What risks might you experience from being in this study?

The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

How will personal information be protected?

The records of the study will be kept private. Research records will be stored securely, and only the researcher will have access to the records.

- Participant responses will be kept confidential through the use of pseudonyms. Interviews will be conducted in the administration office, where others will not easily overhear the conversation.
- Data will be stored on a password-locked computer and may be used in future presentations. After three years, all electronic records will be deleted.
- Interviews will be audio recorded and transcribed. Data will be stored on a password-locked computer and a password-protected external hard drive for three years and then erased. Only the researcher will have access to these recordings.

How will you be compensated for being part of the study?

Participants will not be compensated for participating in this study.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University or Avenger Career Technology Center. If you decide not to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

APPENDIX D: Informed Consent for Focus Group

Consent

Title of the Project: INCREASING THE NUMBER OF HIGH SCHOOL SENIORS MEETING THE SOUTH CAROLINA "PROFILE OF A GRADUATE" MANDATE
Principal Investigator: Cecil Lamar Bonner, graduate student, Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must be a student, 18 years old, and have completed a 4-course career and technology pathway at Avenger Career Technology Center. If you are under 18, you and your parents need to sign the parental consent. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of the study is to solve the problem of an inadequate number of high school seniors at Avenger Career Technology Center meeting the requirement of South Carolina's Profile of a Graduate and to formulate a solution to address the problem.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following things:

1. Participate in a focus group and answer eight specific questions about your experiences at Avenger Career Technology Center. The focus group will be conducted in person and last between thirty minutes to one hour. The focus group responses will be audio recorded via a Microsoft Surface tablet and an iPhone to ensure that recording occurs.

How could you or others benefit from this study?

Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include a contribution to the literature, providing information for practitioners, and improving practices and policies. The results of the study could be useful for Avenger administrators, teachers, students, counselors, and district leadership and increase students' success.

What risks might you experience from being in this study?

The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

How will personal information be protected?

The records of this study will be kept private. Research records will be stored securely, and only the researcher will have access to the records. Data collected as part of this study may be shared in future research studies or with other researchers. If data collected from the participants is shared, any information that could identify them, if applicable, will be removed before the data is shared.

- Participant responses will be kept confidential through the use of [pseudonyms]
- Data will be stored on a password-locked computer and may be used in future presentations. After three years, all electronic records will be deleted.
- Focus groups will be audio-recorded and transcribed. Recordings will be stored on a password-locked computer or a password-protected external hard drive for three years and then erased. Only the researcher will have access to these recordings.
- Confidentiality cannot be guaranteed in focus group settings. While discouraged, other focus group members may share what was discussed with persons outside of the group.

How will you be compensated for being part of the study?

Students who participate in the focus group will be provided a meal valued at $12.00 per participant during the focus group.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University or the Avenger Career Technology center. If you decide to participate, you are free to not answer any questions or withdraw at any time without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, focus group data will not be destroyed, but your contributions to the focus group will not be included in the study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Cecil Lamar Bonner. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact Cecil L Bonner at [redacted] You may also contact the researcher's faculty sponsor, Dr. Tracey Beno Pritchard, at [redacted]

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

By signing this document, you are agreeing to be in this study. Make sure you understand what the study is about before you sign. You will be given a copy of this document for your records.

The researcher will keep a copy with the study records. If you have any questions about the study after you sign this document, you can contact the researcher using the information provided above.

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

☐ The researcher has my permission to audio-record me as part of my participation in this study.

_____
Printed Subject Name

_____
Signature & Date

APPENDIX E: TEACHER CONSENT FORM

Teacher Consent

Title of the Project: INCREASING THE NUMBER OF HIGH SCHOOL SENIORS MEETING THE SOUTH CAROLINA "PROFILE OF A GRADUATE" MANDATE
Principal Investigator: Cecil L Bonner, School of Education graduate student, Liberty University

You are invited to participate in a research study. To participate, you must be teacher at ACTC. Teachers must have worked in a career and technical field post or secondary during their teaching career. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

The purpose of the study is to solve the problem of an inadequate number of high school seniors at Avenger Career Technology Center, meeting the requirement of South Carolina's Profile of a Graduate, and to formulate a solution to address the problem. Students performed below the state average in college and career benchmarks in the district where Avenger Career Technology Center is located.

If you agree to be in this study, I will ask you to do the following things:

1. Answer an online survey that will take 15 to 30 minutes by clicking on a google link that will be provided to you in an email.

The direct benefits participants should expect to receive from taking part in this study are the results of the study could be useful for Avenger administrators, teachers, students, counselors, and district leadership, and increase students success.

Benefits to society include contribution to literature, provide information for practitioners and improve practices and policies

The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

The records of this study will be kept private. Research records will be stored securely, and only the researcher will have access to the records.

- Participant responses will be anonymous.
- Data will be stored on a password-locked computer and may be used in future presentations. After three years, all electronic records will be deleted.
- The online survey tool will record data from the participants. The researcher will not collect names or emails from the participants.
- A complete description of study and individual anonymity will be provided in writing at the onset of the survey.

Participants will not be compensated for participating in this study.

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University or Avenger Career Technology Center. If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the survey without affecting those relationships.

If you choose to withdraw from the study, please [exit the survey and close your internet browser.—OR—inform the researcher that you wish to discontinue your participation, and do not submit your study materials. Your responses will not be recorded or included in the study.

The researcher conducting this study is Cecil L Bonner. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at at [redacted] and/or [redacted] You may also contact the researcher's faculty sponsor, Tracey Beno Pritchard, at [redacted].

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

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Before agreeing to be part of the research, please be sure that you understand what the study is about. You will be given a copy of this document for your records. If you have any questions about the study later, you can contact the researcher using the information provided above.