TEACHER PERCEPTION OF STUDENT CAREER READINESS FOLLOWING CERTIFICATION ATTAINMENT IN A SPECIFIED CAREER AND TECHNICAL EDUCATION COURSE

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Kayse Lee Lazar

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DEDICATION

There are so many people who helped make this journey possible. The completion of this dissertation would not have been possible without the support of my family. First, to my husband Rudy, it is hard to put into words how thankful I am for you. You have stood by my goals and aspirations since our first date when I told you I would get my doctorate one day. In our first year of marriage I started this journey, and four years later you are still here! Thank you for the countless days and nights that you picked up the slack at home and for being understanding when I could not attend functions with you because this dissertation was my priority. Thank you for listening and being a shoulder to cry on when this journey sometimes seemed like it was never going to end. Finally, thanks for your tough love and for telling me, "No Kayse, you will not give up now. You're almost to the finish line, and I did not spend all this money for you to quit!" (LOL). I love you more than you know, and I am so thankful to call you mine.

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ABSTRACT

Lazar, Kayse Lee, *Teacher perception of student career readiness following certification attainment in a specified career and technical education course*. Doctor of Education (Educational Leadership), August, 2020, Sam Houston State University, Huntsville, Texas.

The purpose of this study was to explore the perceptions of CTE high school teachers regarding student career readiness following certification attainment in a specified CTE. A mixed purposeful sampling scheme was utilized to select five participants for the study. All participants were high school CTE teachers with at least 5 years of teaching experience, and their CTE course stream included certification testing for their field. A collective case study was utilized and data were collected using individual interviews. Data were analyzed across cases using a constant comparison analysis in three stages: (a) open coding, (b) axial coding, and (c) selective coding. Through the cross case synthesis four themes emerged from the data: (a) curriculum, (b) instruction, (c) course and career guidance, and (d) necessary employability skills. These themes also had additional sub-themes, and all themes worked together to prepare students for postsecondary success. The teachers interviewed for this study had both positive and negative perceptions of student career readiness within the four themes that emerged. For instance, the CTE teachers had positive comments regarding their own CTE curriculum, but they had suggestions on how to improve career readiness within the core content areas. Furthermore, the teachers had strong opinions on lack of course selection and career guidance with high school counselors. Multiple implications for practice and suggestions for future research are included at the end of the study.

KEYWORDS: CTE, Career readiness, Postsecondary readiness, Vocational training

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CHAPTER I

Introduction

Career and technical education (CTE) has an extensive history in the United States that spans from the beginning of the 17th century where the goal was to simply master a specific skill for a job. In the present century, the goal is not only to master a specific skill but also be able to function in a workplace by using higher order thinking abilities that can only be learned in a rigorous academic setting (Hersperger, Slate, & Edmonson, 2013). Researchers and policy makers have long debated the healthy balance that should occur between the traditional academic courses and vocational courses in the public school setting (Barlow, 1974). Over the last several decades, the labor force has undergone a drastic change due to the increase in technology and the ever-changing nature of the industry (Fluhr, Choi, Woo, & Alagraaja, 2017). Because of the diverse job market, career exploration plays a crucial role in all high school students' lives, but it is essential to students who plan to transition to work directly following high school (Paixao & Gamboa, 2017).

A school in South Carolina developed a plan to help students with career planning while in high school (Stipanovic & Stringfield, 2013). This South Carolina site focused on quality career guidance starting prior to high school. Counselors in South Carolina were required to attend extensive training on career pathways and CTE courses. Two counselors from this South Carolina school even held career specialist certifications. According to Stipanovic and Stringfield (2013), counselors worked closely with teachers, high school administrators, and community business professionals to better understand CTE programs of study. Students at this high school met with counselors regularly to

learn about career pathways, postsecondary information, and course planning related to career readiness. Furthermore, career fairs were provided by local business professionals and local colleges.

When college and career readiness is discussed, more emphasis is placed on the "college-ready" side of the topic than on the "career-ready" side, and there are still an abundance of terms and opinions surrounding what "career-ready" means for an individual (Center on Education Policy, 2013). Because the emphasis is often placed on preparing students for college, quality Career and Technical Education (CTE) programs are lacking, and many students attend college but end up dropping out with no degree, no work skills, no work experience, and a large amount of debt (Dougherty & Zeehandelaar, 2017). The fixation on college-going marginalizes the needs of students who do not go to college by not preparing them with the vocational needs necessary to be successful in a highly skilled workforce (Meyer, 2014; Samuelson, 2012). Furthermore, the "college for all" mentality decreases the value of a college degree, and employers have reported a skills gap between the skills needed for successful employment with the jobs available (Meyer, 2014; Samuelson 2012).

When the No Child Left Behind Act was passed by federal government, CTE courses were pushed aside, and the focus in education was placed heavily on math, science, and English in hopes of preparing more students for college (Peters, 2008). Due to this push, U.S. schools began losing high quality CTE programs within secondary campuses (Dougherty & Zeehandelaar, 2017). According to Rosenbaum, Ahearn, and Rosenbaum (2016), teachers recognized this issue and felt as if a single academic standard was too shallow for all students, and 50% of the teachers within their study

wanted to increase awareness surrounding career readiness. The teachers in Rosenbaum et al.'s (2016) study wanted alternatives like high quality, rigorous CTE courses for students who seemed to be disengaged with the traditional academic work and whom were not considered "college material."

Statement of the Problem

In the spring of 2014, The U.S. Bureau of Labor Statistics published information stating that employers reported approximately 4.6 million job openings whereas 9.5 million Americans reported being unemployed. At the same time as these statistics, Meyer (2014) published an article discussing career readiness initiatives providing inadequate CTE training to students resulting in workers who lacked the necessary skills to enter the workforce following high school. According to literature, the absence of high quality CTE programs might be related to some of the following issues: lack of a clear definition on career readiness, lack of clear policy surrounding career readiness, lack of appropriate assessment tools to measure student career readiness, and lack of adequate teacher training and recruitment of CTE teachers (Career Readiness Partner Council, 2012; Center on Education Policy, 2013; Dougherty & Zeehandelaar, 2017; Meyer, 2014; Michelman, 2017; Peters, 2008; Rosenbaum, Ahearn, & Rosenbaum, 2016; Samuelson, 2012).

Researchers have sought to define the meaning of career readiness by speaking with educators, policy makers, and business leaders but have concluded that these different entities have differing opinions on what being "career ready" means (Michelman, 2017). Furthermore, constructing a definition of career readiness has become cumbersome and complicated in the last decade due to the debate on what

constitutes career readiness and if it differs from college readiness (Meyer, 2014). Some believe that separate skills and knowledge are needed to make an individual career ready versus college ready; others believe that career readiness and college readiness are completely intertwined, whereas others believe that the two (i.e., career readiness and college readiness) share distinct characteristics but are not identical in nature. Then, to add to the confusion, there is an abundance and an assortment of terms and frameworks surrounding career readiness in the United States; these terms include but are not limited to "21st century skills," "CTE," and "workplace readiness" (Career Readiness Partner Council, 2012).

In 2013, the Center on Education Policy confirmed the ambiguous definition of career readiness in the United States through a report describing how individual states defined career readiness. Of the 46 states that responded to the survey sent to CTE state directors by the Center on Education Policy, only 14 states reported having a statewide definition of career readiness. Eleven of these 14 states defined career readiness to be the same as college readiness, whereas the remaining three states have distinct definitions for both career readiness and college readiness. Twenty states reported being in the process of constructing a definition of career readiness, whereas the remaining 12 states reported not having a definition of career readiness. Texas was among the states not having a definition of career readiness and was the setting for this study.

Although defining career readiness and the terms surrounding it is a crucial step to improving CTE programs across the United States, additional decisions are needed to improve student career readiness (Meyer, 2014). Upon creating a clear definition for career readiness, legislators and policy makers need to work to create clear policy

regarding career readiness grounded in standards for student expectations in CTE. The Common Core State Standards Initiative has been at the head of this effort and has shown the complexities involved in trying to assign meaning to college and career readiness, which has resulted in little impact on CTE and how CTE skills are assessed (Career Readiness Partner Council, 2012; Meyer, 2014).

Another vital component in building a career-readiness framework is in assessing student learning (Meyer, 2014). Just like opinions differ in the definition of career readiness, opinions differ among the different stakeholders (i.e., educators, policy makers, and business leaders) on what should be assessed and measured to determine career readiness. The Career Readiness Partner Council (2012) reported two significant state challenges in assessing students' career readiness: funding and consistency. Most states in the United States require the school districts or students to pay for CTE exams. Furthermore, the method of assessment varies among states and among school districts within a state. Some districts are using industry based and licensing exams to measure career readiness in a specific field, whereas others are using testing systems like the ASVAB to assess employability skills. Still other states and districts are assessing career readiness based on academic skills related to career readiness.

Finally, the lack of adequate teacher training and recruitment for CTE programs hinders student career readiness following high school (Meyer, 2014). In the United States, CTE teachers have technical knowledge and skills in addition to workplace experience surrounding the courses they are teaching, but they lack formal training in instructional strategies, classroom management, and integration of core academic content (Jacques & Potemski, 2014). Career and technical education teachers have different

educational backgrounds that vary based on the requirements in their career fields (e.g., 4-year degrees, 2-year degrees, certificates) (Meyer, 2014). In addition to licensure challenges in attaining adequate teachers in CTE, the education system is in competition with corporate America who can pay higher salaries than school systems.

Conceptual Framework

A conceptual framework explains the key factors to be studied within a study and shows the relationships that exists among these factors (Miles, Huberman, & Saldana, 2014). The conceptual framework for my study was based on the Whole Child approach as outlined by the Association for Supervision and Curriculum Development. Association for Supervision and Curriculum Development's Whole Child approach focuses on the long-term development of all children and shifts the definition of a successful learner away from one that solely relies on narrow academic achievement (Association for Supervision and Curriculum Development, 2019; Slade & Griffith, 2013). The Whole Child approach as defined by Association for Supervision and Curriculum Development is based on five essential tenets: (a) health (i.e., students learn about living and practicing a healthy lifestyle), (b) safety (i.e., the environment where students learn is safe both physically and emotionally), (c) engagement (i.e., students are actively engaged in the learning and connected to the school and community), (d) support (i.e., student learning is personalized and supported by a caring, qualified adult), and (e) challenge (i.e., students are challenged academically and prepared for life following high school in whatever their next step may be) (Association for Supervision and Curriculum

Development, 2019; Slade & Griffith, 2013). For this study, my framework focused on the last three tenets listed: engagement, support, and challenge.

This approach urges educators to think about supports that provide a more holistic approach to students by weaving together math, science, the arts, humanities, and the psychosocial aspects of each learner (Slade & Griffith, 2013). This paradigm shift comes at a time when the workforce is demanding a more educated and highly skilled worker than ever before (Slade & Griffith, 2013). The workforce of the 21st century expects students to think critically and creatively, communicate effectively, comprehend massive amounts of information, solve complex problems, and collaborate with others while being able to adjust and adapt to the challenges of today and tomorrow (Association for Supervision and Curriculum Development, 2019; Slade & Griffith, 2013). The global economy is placing emphasis on the education system to equip students with the skills necessary to live and work in an ever changing environment (OECD, 2008; Slade & Griffith, 2013). Furthermore, change and innovation are an inevitable part of the global economy of the 21st century where schools should be preparing students for jobs that do not currently exist (Slade & Griffith, 2013).

According to Pink and Zhao (2011), school systems need to catch up to the current reality and adjust instruction to reflect the needs of the 21st century. A paradigm shift to a Whole Child approach in school systems will encourage economic growth as society moves from the information age to the conceptual age (Slade & Griffith, 2013). The skills necessary to be successful during this conceptual age cannot be learned through rote memorization but rather through collaboration, interaction, and cooperation (Slade & Griffith, 2013). According to Slade and Griffith (2013), schools must expand

their understanding of what constitutes adequate learning by looking outside the realm of pure academic measures. The Whole Child approach does not confine content knowledge to specific subjects, but instead adapts the curriculum and content to adapt to individual students' needs, learning preferences, and interests.

Purpose of the Study

The incentive behind this study was my appeal to add to the literature surrounding career readiness and to increase the value of learning for all students, including those not attending a postsecondary institution. Although there is much research regarding college readiness and even college and career readiness together, most researchers have not focused their attention on career readiness for students who are not interested in postsecondary education. The purpose of this study was to explore the perceptions of CTE high school teachers regarding student career readiness following certification attainment in a specified CTE course (i.e., animal science, welding, health science, culinary arts, and law enforcement).

Research Question

For this qualitative study, the following research question was addressed: How do selected CTE teachers perceive students' career readiness in their CTE pathway?

Significance of the Study

The fixation of college-only behavior following high school graduation undermines students who do not plan to attend college following high school, and it curtails their need for further vocational education (Samuelson, 2012). Furthermore, this mindset takes away the true value of receiving a college degree and shifts the focus away from the importance of the necessary skills needed to receive a college diploma. Because

of this “bachelor degree or bust” mentality, many students do not receive the necessary CTE education in high school to prepare them for the workforce, and some of them end up dropping out of college without a degree, without the necessary skills needed to be successful in a job, without any work experience, and without any money because of the debt they incurred from college enrollment (Dougherty & Zeehandelaar, 2017).

According to Peters (2008), CTE programs have been pushed aside since the federal government passed the No Child Left Behind Act. Instead, college-prep courses in English, science, and math have taken precedence in the high school curriculum. Although this coursework does prepare students who want to attend postsecondary education at a four-year university or college, it takes away needed technical education from students who might otherwise dropout from the lack of real world work experience in the high school setting (Peters, 2008; Samuelson, 2012).

Peters (2008) suggested that the most exciting implication of a strong CTE program is that it is a solution to dropout prevention. Eighty-one percent of high school dropouts reported that they may have stayed in school if there had been more relevant, real-world learning taking place in their classrooms (Bridgeland, Dilulio, & Morison, 2005). Real-world relevance, skill building, and engagement are all skills that effect on-time high school graduation and lower dropout rates; findings by Gottfriend and Plasman (2018) suggest that CTE courses encourage these skills within the classroom.

Furthermore, some high school students sit in their classrooms on a daily basis pondering when they will ever use the content being taught to them (Dougherty & Zeehandelaar, 2017). Some of these students are bored with the classes they are taking and are disconnected from the topics that fascinate and interest them (Samuelson, 2012).

Studies indicate that levels of disengagement in the classroom can lead to behavioral issues and a decline in teacher satisfaction with their career (Samuelson, 2012). According to Rosenbaum et al. (2016), "One size doesn't fit all," and an educational system must be developed that appeals to all learners, including students who are not collegebound following high school.

For generations, schools have focused on either preparing students to be college ready or preparing students to enter a vocation (Meyer, 2014). A transition is occurring across the United States due to business groups reporting the lack of highly skilled applicants available for hire. U. S. schools are beginning to transform their idea of college and career ready to equip youth with the necessary academic and vocational skills needed to be successful in the workforce. The Texas legislature recognized this skills gap and passed House Bill 5 in 2013, which adjusted the graduation requirements for high school graduates to provide them with more opportunity to explore careers of interest; furthermore, some of the CTE clusters offered provide career certification exams (e.g., animal science, health science, law enforcement) at the end of the course sequence (Texas Education Agency, 2017).

Definition of Terms

Career readiness. Texas did not have a definition for *career readiness* at the time of

this study. Therefore, the following definition was used for career-readiness:

> A career-ready person effectively navigates pathways that connect education and employment to achieve a fulfilling, financially-secure and successful career. A career is more than just a job. Career readiness has no defined endpoint. To be

> career ready in our ever-changing global economy requires adaptability and a commitment to lifelong learning, along with a mastery of key knowledge, skills, and dispositions that vary from one career to another and change over time as a person progresses along a developmental continuum. Knowledge, skills, and dispositions that are inter-dependent and mutually reinforcing. These include: academic and technical knowledge and skills; and employability knowledge, skills, and dispositions. (Career Readiness Partner Council, 2012, p. 2)

Academic and technical knowledge and skills. A career ready individual must encompass both academic and technical knowledge and skills. Academic knowledge and skills is defined as knowledge and skills learned within the core academic content areas such as math, science, English, and social studies (Career Readiness Partner Council, 2012). These academic skills must be combined with technical knowledge and skills, which are the technical skills and knowledge needed to be successful in a specific career field like marketing or nursing.

Employability knowledge, skills, and dispositions. Employability skills are often referred to as "soft skills" and are the skills (i.e., time management, perseverance, self-discipline, and problem solving) necessary to be successful at an entry-level position in a career (Career Partner Readiness Council, 2012). For this study employability knowledge, skills, and dispositions will be defined as a person that

> has a good understanding of their interests, talents, and weaknesses and a solid grasp of the skills and dispositions necessary for engaging in today's fast-paced, global economy. These include but are not limited to: goal setting and planning; managing transitions from school to work and back again, and from one

> occupation along a career pathway to another; clear and effective communication skills; critical thinking and problem solving; working productively in teams and independently; effective use of technology; and ethical decision-making and social responsibility. (The Career Partner Readiness Council, 2012, p. 2)

Career and technical education (CTE). Career and technical education courses are classes designed to prepare students for employment (Gewerts, 2018). The term CTE is applied to educational programs that focus on modern technologies, career preparation, skilled trades, and applied sciences (The Glossary of Education Reform, 2014). Career and technical education programs bring real-world relevance to a wide variety of career industries and fields and allow students to gain hands-on work experience through internships, industry-certification, and on-the-job training (Gottfried & Plasman, 2018; The Glossary of Education Reform, 2014). In Texas, CTE is defined as "programs that offer a sequence of courses that provides students with coherent and rigorous content. CTE content is aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in current or emerging professions." (TEA, 2020, p.1)

CTE coherent sequence graduates. According to the 2015-16 TAPR Glossary, a CTE coherent sequence graduate is a high school graduate who was enrolled in and completed a coherent sequence of CTE courses as part of their four-year graduation plan.

Delimitations

My study was delimited to a single high school in a suburban Texas school district in south Texas. Furthermore, the teachers selected for the study encompassed only five of the CTE programs offered within the selected school because these five

programs ended in industry certification for the specified field of study. Interviews were conducted with a single teacher from each of the five career fields selected (e.g., animal science, welding, health science, culinary arts, and law enforcement). Finally, data was collected in the middle of the school year which could affect the teachers' perceptions (i.e., teacher perception might be different at the beginning or end of the school year).

Limitations

In qualitative research, validity refers to the trustworthiness, credibility, and defensibility of the research being studied (Johnson & Christensen, 2012). Threats to internal and external validity occur at three stages in the research process: research design and data collection, data analysis, and data interpretation (Onwuegbuzie & Leech, 2007). Onwuegbuzie and Leech (2007) created the Qualitative Legitimation Model, which identifies the threats to internal credibility, external credibility, or both within a study. The Qualitative Legitimation Model was used to identify potential threats to both internal and external validity for this study.

Furthermore, strategies to assess legitimation and validity of the study have been researched and were used to increase the legitimation for this study. Descriptions of possible threats to internal validity and external validity and strategies to assess for legitimation and validity are in the following sections.

Threats to internal validity. According to Onwuegbuzie and Leech (2007), "internal credibility can be defined as the truth value, applicability, consistency, neutrality, dependability and/or credibility of interpretations and conclusions within the underlying setting or group" (p. 234). Internal credibility is compromised by multiple causes related to how the researcher interprets an observed relationship (Johnson &

Christensen, 2012). Onwuegbuzie and Leech (2007) listed 14 possible threats to internal credibility, and for this study, five were of concern: (a) voluptuous legitimation, (b) descriptive validity, (c) observational bias, (d) researcher bias, and (e) reactivity.

First, voluptuous legitimation, which can also be called situated or embodied validity, is interpretive in nature; voluptuous legitimation refers to the extent to which a researcher's interpretation of the data exceeds the researcher's knowledge of the database (Onwuegbuzie & Leech, 2007). Second, descriptive validity refers to the factual account of descriptive information as reported by the researcher (Johnson & Christensen, 2012; Onwuegbuzie & Leech, 2007). A third threat to the internal validity of this study was in observational bias. Observational bias occurs during the research design, data collection, and/or data analysis stages (Onwuegbuzie & Leech, 2007). This type of bias can occur if the researcher has collected an inadequate amount of words from the participants, which in turn, effects the data analysis stage as there is not enough data to analyze sufficiently.

Fourth, researcher bias occurs when the researcher has personal opinions regarding research being studied; this bias could easily transfer to the participants and effect their responses or attitudes of the phenomenon being studied (Onwuegbuzie & Leech, 2007). The final threat to internal validity for this study is called reactivity. According to Onwuegbuzie and Leech (2007), reactivity is when a participant changes their responses or reactions because they are participating in a research study.

Threats to external validity. Onwuegbuzie and Leech (2007) describe external validity as "the degree that the findings of a study can be generalized across different populations of persons, settings, contexts, and times" (p. 235). To be able to confirm the findings of this study, it was important that the threats to external validity be identified

(Onwuegbuzie & Leech, 2007). Twelve threats to external validity are identified by Onwuegbuzie and Leech (2007), but only four were a concern for this study: (a) interpretive validity, (b) consensual validity, (c) population generalizability, and (d) researcher bias.

Interpretive validity refers to the accuracy of the researcher's interpretation and understanding of the participants' feelings, viewpoints, thoughts, and experiences surrounding the research being studied (Johnson & Christenson, 2012; Onwuegbuzie & Leech, 2007). Second, consensual validity could be a threat to the external credibility of the study. Consensual validity stems from others' opinions, and the participants involved automatically agree that the evaluation of a phenomenon or educational situation are right due to the educated individuals providing the description (Onwuegbuzie & Leech, 2007).

During the data interpretation stage, population generalizability posed another threat to the external credibility of this study. Only when large samples are utilized should findings be generalized across the population, and for this study, there were only five participants in the sample (Connolly, 1998; Onwuegbuzie & Leech, 2007). Therefore, the data collected for this study was utilized to obtain insights into certain processes and practices that occur within the specific location (Onwuegbuzie & Leech, 2007). Lastly, researcher bias posed a threat to not only the internal credibility but also the external credibility of this study. As described in the previous section, the researcher's bias could be so exclusive that it effects the generalizability of the data (Onwuegbuzie &Leech, 2007).

Strategies to assess legitimation and validity of the study. Although there are multiple threats to both the internal and external credibility of any qualitative study, there

are many strategies that can and should be utilized to assess the legitimation and validity of a study. For this study, the following strategies were utilized: (a) investigator triangulation, (b) data triangulation, (c) leaving an audit trail, (d) member checking, and (e) reflexivity. Triangulation involves the use of multiple methods or sources to obtain substantial evidence (Onwuegbuzie & Leech, 2007). Data triangulation was utilized through the use of multiple interviews (Johnson & Christensen, 2012).

An audit trail was kept throughout the entire data collection and data analysis process. Extensive documentation of all data collected and analyzed were kept in Excel (Onwuegbuzie & Leech, 2007). Also, member checking occurred through participant feedback following each interview and through consultation with my dissertation chair (Johnson & Christensen, 2012; Onwuegbuzie & Leech, 2007). Finally, I practiced reflexivity throughout the entire research process; I continuously self-reflected on my internal biases and predispositions by keeping a written journal for documentation (Johnson & Christensen, 2012).

Assumptions

The assumptions for my study included that all participants were highly qualified in their field of study for the CTE course they taught. Second, I assumed that there was a solid curriculum taught and put in place for each CTE pathway within this study. Third, I assumed that each participant was being honest and forthcoming throughout the interview process. Finally, the assumption was made that participants within this study were knowledgeable regarding the skills and behaviors necessary to be successful in today's workforce.

Organization of Remaining Chapters

This study described teacher perceptions of student career readiness following participation in a CTE pathway that ends with job certification for that content area. In Chapter I, an introduction to the study has been provided, which includes the statement of the problem, conceptual framework, purpose of the study, research question, significance of the study, definition of terms, delimitations, limitations, and assumptions. Chapter II will contain a review of the literature on CTE by including the following sections: (a) history of CTE in the United States, (b) history of CTE in Texas, (c) accountability for CTE programs, (d) student choice in coursetaking, (e) rigorous CTE coursetaking and programs, (f) disparities in CTE enrollment, and (g) CTE teacher certification and professional development needs. Chapter II will conclude with a summary of the literature discussed. Chapter III will include the methods used for the research study. The sections for Chapter III will include an overview of the chapter, the research design, selection of participants, instrumentation, data collection, data analysis, and a summary of the chapter. Chapter IV will contain the presentation and analysis of data. Finally, Chapter V will include the discussion of findings, as well as implications for practice and recommendations for future research.

CHAPTER II

Review of Related Literature

Career and technical education (CTE), which was once called vocational education, has continued to evolve throughout history and become a bridge to transition students from high school to postsecondary life, whether that is attending an academic institution, attending a trade school, or entering the workforce (Dare, 2005). Much research has been done to gain insight on the effects of CTE on students as it pertains to engagement, dropout prevention, career guidance, real world experience, etc. Some of the literature related to CTE will be reviewed in this chapters. The sections in this chapter will be as follows: (a) history of CTE in the United States, (b) history of CTE in Texas, (c) accountability for CTE programs, (d) student choice in coursetaking, (e) rigorous CTE coursetaking and programs, (f) disparities in CTE enrollment, and (g) CTE teacher certification and professional development needs.

History of CTE in the United States

According to Hersperger et al. (2013), the role of CTE in the United States has shifted from a skill-based track such as taking a shop class to preparing high school students to enter college, to enter the work force, or to enter postsecondary training. Career and Technical Education began in the 17th century with the Puritans; their goal was to master a specific skill they believed they were destined for (Kneller, 1963). In the 19th century, most schooling was limited to elementary school, so boys often entered apprenticeships hoping their masters would teach them how to read and write (Kober, 2007). During the Industrial Revolution, the foundation of CTE was built through two movements: trade schools and practical arts. Trade schools focused on teaching a trade with more formalized instruction than apprenticeships had been able to do, whereas the

practical arts movement provided new curriculum in reading and writing (i.e., agriculture and domestic science) with instruction using skill-based learning (Barlow, 1974). These two movements began the debate on time spent on general education versus time spent on vocational training.

At the beginning of the 20th century, new legislation was enacted which supported funding for vocational education. For instance, to survey the status of vocational education, the Commission of Vocational Education was developed, and the Smith-Hughes Act of 1917 was passed that provided funding to develop secondary vocational education programs across the United States (Brewer, 2011). World War I and World War II also had a large influence on vocational education as the military needed soldiers to know a specific trade and skilled craft. Additionally, a need for trained women became important during this wartime as they were needed to fill positions previously taken by men serving in the military (Kober, 2007).

As veterans began to return from war, they needed employment and training to re-enter the workforce; the G.I. Bill was passed on June 22, 1944, and the purpose was to provide funding for veterans to receive vocational training in their field of choice (Kober, 2007). The Korean and Vietnam Wars created another need for the importance of vocational training for veterans returning from war and entering the workforce untrained. The Vocational Act of 1963 was passed, and additional funding was provided for disabled individuals and individuals who had dropped out of high school or had recently graduated from high school (Calhoun & Finch, 1976).

The National Advisory Council was established in 1968 and was tasked with disseminating information on vocational education to the public (Calhoun & Finch,

1976). Also, the Vocational Education Amendments of 1968 were passed, and through these amendments, vocational education continued to advance. These amendments (a) required states to provide detailed plans of how funds were being used in vocational education, (b) helped students transition from high school to the work force, (c) outlined the curriculum for vocational courses, (d) required training for CTE teachers, and (e) urged vocational programs to form working relationships with businesses in their area.

From 1972 to 1976, three more amendments were made into laws, which had an effect on vocational education in the United States. In 1972, the Bureau of Occupational & Adult Education was created, and the amendment focused on providing career counseling for students from elementary school until after high school. Because students in vocational courses were not prepared to enter their career of choice following high school, the amendment of 1974 mandated high schools integrate programs that met students' abilities, goals, and needs regarding career attainment. Last, the amendment of 1976 focused on program evaluation to regulate how funding was being spent for vocational training.

In 1983, the National Commission on Excellence in Education under President Ronald Reagan published an article titled *A Nation at Risk*, which outlined the need for all citizens to be able to attain employment and contribute to society (National Commission on Excellence in Education, 1983). This article incited two years of educational reform and made business leaders recognize the need for skilled workers with thinking abilities at a higher level. This movement invoked the passing of the Carl D. Perkins Vocational Education and Applied Technology Act, which is how CTE activities and programs are federally governed at the time of this study.

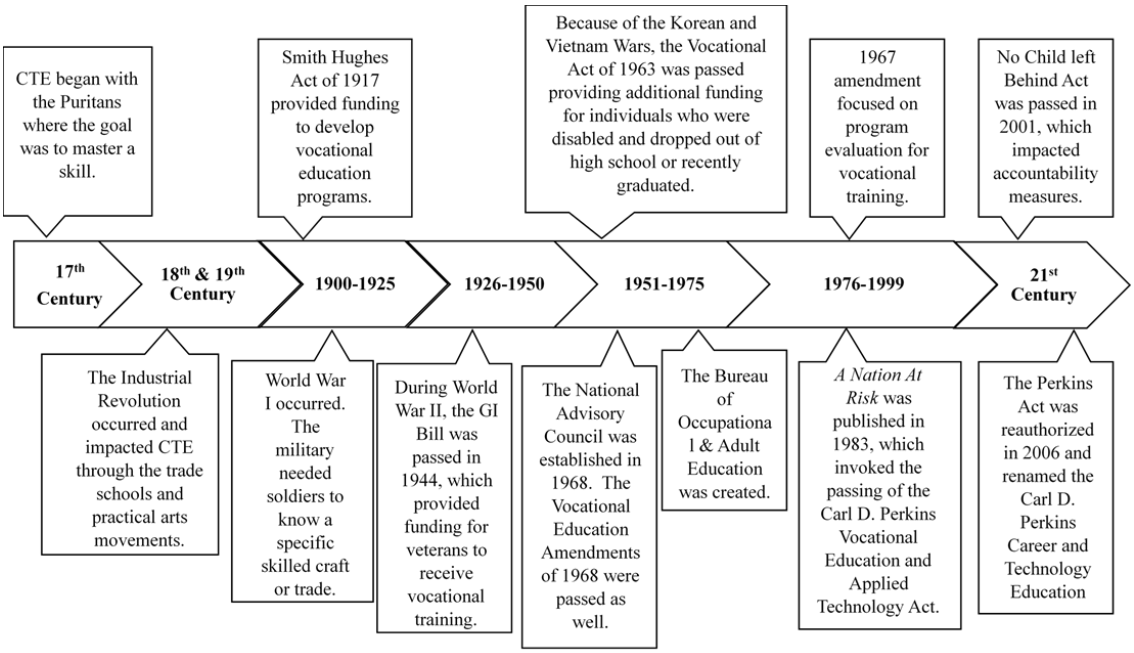
The Perkins Act has been reauthorized three times, and each time it has influenced CTE programs. The first Perkins Act was passed in 1984, and it sought to improve the vocational education provided to the workforce and to provide vocational education to individuals who had no previous vocational education or training (Association for Career and Technical Education, 2002). The Perkins Act was reauthorized for the first time in 1990 and focused on improving the academic aspect of vocational training with a focus in technology and postsecondary education. In 1998, the Perkins Act was reauthorized for a second time, and the reauthorization required states to report performance data in the following areas: (a) student ability, (b) high school completion, (c) postsecondary training or education, and (d) military. Finally, the third reauthorization of the Perkins Act occurred in 2006, and the name was changed to the Carl D. Perkins Career and Technical Education Act. The focus shifted to academic achievement for all CTE students and to preparing CTE students for postsecondary education (United States Department of Education, 2011). In the final reauthorization, states were required to submit 5-year plans for their CTE programs.

During this time, the No Child Left Behind Act (2001) was passed, and although it did not address CTE directly, many CTE programs that were in place at the time of this study were a result of the No Child Left Behind Act. The mandate of accountability measures probably had the biggest impact on CTE programs, particularly in the state of Texas. The Texas Education Agency implemented the Performance-Based Monitoring Analysis System in the 2004-2005 school year. This analysis system was a tool used to help monitor programs across the state of Texas including CTE. The goal of the system was to improve school districts across Texas by evaluating student performance on

specific standards and having high expectations for all students. For a visual showing a condensed version of the history of CTE in the United States, see Figure 1.

Figure 1

History of CTE in the United States



History of CTE in Texas

Since the Smith Hughes Act of 1917, the federal government has required states to submit reports regarding the effectiveness of vocational programs, but in 2007 the state of Texas formulated a 5-year plan based on the Carl D. Perkins Career and Technical Education Act. The Texas State Plan for Career and Technical Education 2008-2013 addressed four areas: (a) identify the diverse needs of the student population, (b) implement programs and curriculum to prepare students for postsecondary success, (c) provide access to a quality education that prepares all students for the competitive global economy, and (d) hire and retain quality teachers (Texas Education Agency, 2007). The Texas Higher Education Coordinating Board worked on the state plan with Texas

Education Agency and hoped to align it with their goals written in *Closing the Gap (CTG) by 2015*. The intent was to bridge the gap between secondary and postsecondary education.

The state plan included a description of the CTE programs of study, which were modeled after the 16 career clusters adopted by the United States Department of Education. A minimum of three CTE programs of study, meeting the Perkins IV requirements, from three different career clusters had to be offered through all state public schools. Also, the programs had to allow students to graduate on at least the Recommended High School Graduation Plan, and the students were allowed to participate in extracurricular activities of their choice. The CTE state plan also included initiatives pertaining to college readiness and high school success as outlined by House Bill 1, which was passed by the 79th Texas Legislature.

One of the objectives set forth by House Bill 1 was to provide recommendations to the State Board of Education on recommendations to align high school and postsecondary education (Texas Education Agency, 2007). One recommendation was the implementation of Tech Prep programs in Texas high schools. As defined by Perkins IV, Tech Prep programs (a) need to include an agreement between high schools and postsecondary educators; (b) need to teach proficiency in math, science, communication, and technology at the core of the program; (c) need to be accessible by special populations; and (d) need to align with Title I Programs (College Tech Prep of Texas, 2010). Overall, Tech Prep programs should be rigorous enough to help students be successful in college and should prepare them with the skills needed to begin a career. In Texas, approximately 89% of the public schools offer Tech Prep programs of study.

Studies show that students participating in these programs were more likely to graduate from high school, were less likely to drop out of high school, and have a higher college entrance rate (College Tech Prep of Texas, 2010).

Another initiative developed from the state CTE plan was Achieve Texas. The goal of this initiative was to help all students make adequate educational decisions for their lives following high school (Texas Education Agency, 2008). The plan developed for Achieve Texas encouraged public schools to redesign their curriculums and to intertwine the career clusters into their programs of study so students had the academic and technical skills needed to succeed once they graduated high school. Through this initiative, students began understanding careers in elementary school, investigating careers in middle school, and focusing on a career through a chosen program of study in high school (Texas Education Agency, 2010). In addition, all students would complete a personal graduation plan starting in middle school, which would be updated annually through their secondary schooling. Furthermore, each student would choose a program of study based on their area of interest and would receive career counseling with a large emphasis on postsecondary education. Through the Achieve Texas initiative, students would also have the opportunity to take dual credit courses and to participate in work-based learning activities, apprenticeships, or internships (Texas Education Agency, 2010).

The most recent initiative to impact CTE curriculum in Texas was the passing of House Bill 5: The Foundation High School Program by the 83rd Texas Legislature in 2013. The Texas Education Agency collaborated with the Texas Higher Education Coordinating Board and the Texas Workforce Commission to establish a new high school

graduation plan with the hopes of preparing students for the increasingly competitive workforce (Stringer, Kerpelman, & Skorikov, 2012). House Bill 5 went into effect for all students entering the ninth grade for the 2014-2015 school year. The new graduation plan provided students with an option of five endorsement paths (i.e., science, technology, engineering, and mathematics [STEM]; business and industry; public service; arts and humanities; and multi-disciplinary studies) that they choose based on their interests and goals following high school (Texas Education Agency, 2017). Every student would still be required to gain a minimum amount of credits in English, mathematics, science, social studies, foreign language, physical education, and fine arts, but the additional elective courses would now align with the endorsement students chose. House Bill 5 has impacted CTE programs across Texas as programs have had a large increase in enrollment as students seek to explore their interests through their elective courses.

Texas Governor Rick Perry signed House Bill 5 into law on June 10, 2013. This bill impacted Texas public schools in three ways: (a) state testing requirements, (b) graduation requirements, and (c) accountability. This bill dramatically changed the number of end of course (EOC) exams required for graduation from 15 to five. These five tests include English I, English II, Algebra I, biology, and U.S. history, and students must pass them to graduate from high school. House Bill 5 allows school districts to administer the English III and Algebra II EOC tests to assess postsecondary readiness, but this option is not a state requirement.

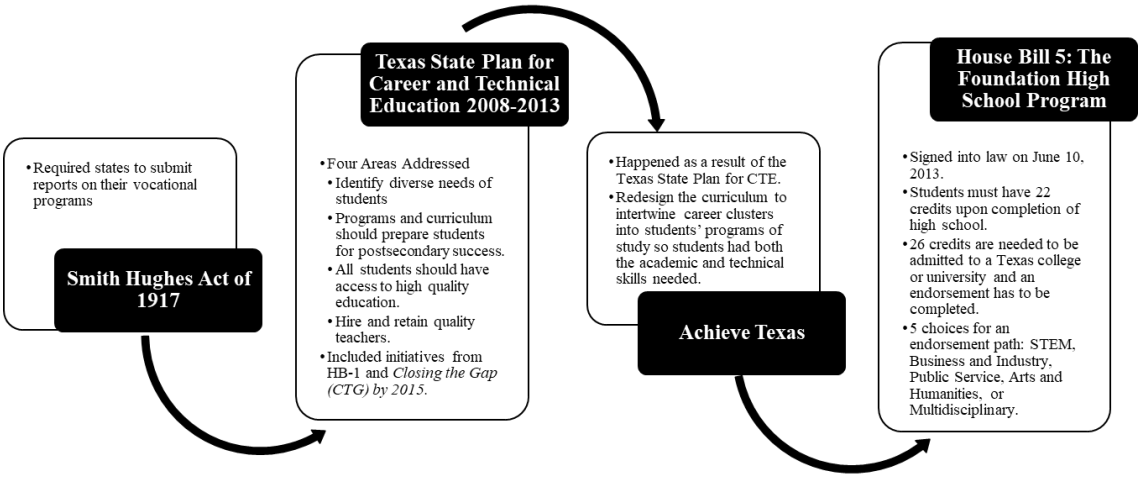
Not only did House Bill 5 impact state testing, but it also had an impact on graduation requirements starting in the 2014-2015 school year. A new program called

the *foundation high school program* was implemented with House Bill 5, which requires students to have a total of 22 credits upon completion of high school. Within these 22 credits, students must gain four credits in English, three credits in math, three credits in science, three credits in social studies, two credits in a foreign language, one credit in fine arts, one credit in PE, and five elective credits. Furthermore, students can earn an endorsement in one of five areas (i.e., STEM, Business and Industry, Public Service, Arts and Humanities, or Multidisciplinary). Finally, a distinguished level of performance can be achieved, which is required for admission to a Texas college or university. To earn the distinguished level of performance, students are required to take an additional math and science (i.e., four math credits and four science credits) and an endorsement must be completed.

House Bill 5 also had a large impact on the accountability system utilized to assess Texas public schools. A new index system was presented that contains four areas: (a) Student Achievement, (b) Student Progress, (c) Closing Performance Gaps, and (d) Postsecondary Readiness. Furthermore, the rating categories changed to A-F labels for schools. An A, B, or C rating reflects an acceptable rating, and a D or F rating reflects unacceptable performance. For a visual showing a condensed version of the history of CTE in Texas, see Figure 2.

Figure 2

History of CTE in Texas



Accountability for CTE Programs

After the U.S. Congress passed the No Child Left Behind Act of 2001, all states have been required to implement accountability systems in their public schools. CTE programs have been included in the development of these comprehensive state accountability systems, and one measure many states are looking at regarding CTE program quality are the number of students gaining industry-recognized credentials. The National Skill Standards Board produced skill standards and credentials for only a few industries in 1994; therefore, there is not a common structure surrounding skill standards and certifications for industry related careers.

For this reason, Castellano, Stone, and Stringfield (2005) used data from a longitudinal study to increase the knowledge surrounding industry-recognized credentials in high school. They wanted to investigate student participation in these programs and

determine if these industry-recognized credentials could provide feedback on CTE program quality. Castellano et al. (2005) chose three sets of feeder schools (middle school, high school, community college) with similar demographic data from a larger longitudinal study. Each set was located in a different state within the United States. Within the three individual sets, one high school was implementing a CTE program whereas the other was not. Data were collected over a period of four years on three grade cohorts: Grades 7, 9, and 11. The findings from the study indicated that students were more likely to earn industry-based credentials if their high school was more traditionally vocationally-oriented rather than academically-oriented. Stakeholders involved in this study did not consistently agree on the value of industry-based credentials in schools. Overall, teachers and administrators had concerns about the costs associated with certification exams and the maintenance of the CTE programs. However, the educators recognized the values these CTE credentials could have for their students to gain meaningful employment following high school.

Texas has gained a new interest in preparing students for postsecondary success with the passing of House Bill 5 and the new Texas Education Agency accountability measures. The new accountability system measures schools in three areas: (a) student achievement, (b) school progress, and (c) closing the gaps (Texas Education Agency, 2018). Postsecondary readiness is measured in the student achievement section and is titled the College, Career, and Military Readiness (CCMR) Component. Points are given for graduates who accomplish any of the following CCMR indicators: (a) meeting criteria on an approved AP/IB exam, (b) meeting TSI criteria for both reading and mathematics, (c) completing a college prep class offered by a partnership between a district and higher

institution as required from House Bill 5, (d) completing a dual credit course successfully, (e) completing an OnRamps course successfully, (f) earning an industry certification, (g) being admitted to a postsecondary industry certification program, and (f) enlisting in the United States Armed Forces.

Because of this growing interest in postsecondary readiness in Texas, Holman, Kupczynski, Mundy, and Williams (2017) conducted a quantitative study to determine the relationship between student perception of postsecondary readiness and five key factors (i.e., curriculum, extracurricular activities, facilities, teacher knowledge, administrator support). All participants were high school seniors from a high school in south central Texas and were enrolled in a CTE course at the time of the study. All participants were given a 10-point Likert scale survey divided into four parts consisting of the following: (a) readiness for higher education including a 2-year community college or a 4-year university, (b) readiness for a career in the student's current CTE course, (c) readiness for a vocational or trade school, and (d) demographics.

Holman et al. (2017) collected data in only three of the five possible endorsement areas (i.e., Business and Industry, STEM, Public Service, Arts and Humanities, and Multidisciplinary) because only students enrolled in the Business and Industry and Public Service endorsement areas enroll in CTE courses. Results from this study indicated that students enrolled in courses in the Public Service endorsement area felt more prepared for the workforce and for higher education based on their teachers' knowledge. Furthermore, students participating in the Public Service endorsement believed they were ready for higher education because of the curriculum within the endorsement. The significant difference noted between student perception in the Business and Industry endorsement

compared to the Public Service endorsement area could be impacted by the following factors: (a) more certification areas are offered in the area of Public Service that require specific facilities, (b) requirements for teacher credentials are vastly different in the two endorsement areas, and (c) the Public Service endorsement area often ends in a capstone course that requires a clinical or practical experience connecting students to the real world in that field of study (Holman et al., 2017).

Student Choice in Coursetaking

In 2015, DeFeo discovered that majority of the students took a CTE course because they thought they would learn something useful that would relate to personal interest in the real world. Lifelong happiness is closely connected to career satisfaction, so the necessity of career exploration, development, and planning cannot be overemphasized (Shalcross, 2013). In 2015, DeFeo conducted a study to add to the research surrounding why students take CTE courses, how CTE classes complement students' career goals, and what students' knowledge is surrounding career opportunities in the CTE courses. For the study, data were collected from a large school district containing eight comprehensive high schools and one technical high school in the spring of 2014. A total of 1,134 students participated in the study with 821 students from comprehensive high schools and 313 from the technical high school.

When DeFeo (2015) disaggregated the data into school type, the following results were revealed: (a) 80% of students in the technical high school were interested in the CTE courses they were taking compared to 46% of students in the comprehensive high schools, (b) 75% of students in the technical high school thought they would learn something useful in the CTE courses they were taking compared to 56% of students in

the comprehensive high schools, and (c) 67% of students in the technical high school said their career interest aligned with the CTE courses they were enrolled in compared to 34% of students in the comprehensive high schools. When analyzing the data for alignment to career aspirations, only 22% of students taking CTE courses from the comprehensive high schools were aligned whereas 37% of students taking CTE courses from the technical high school were aligned. Furthermore, the results indicated that students from both the comprehensive high schools and the technical high school had little career knowledge as part of their experience in their CTE courses. DeFeo (2015) suggested that CTE curriculum needed to be adjusted to include career knowledge development in addition to technical skills, reasoning that the career development information might help students discover if they are on the right path regarding their career goals.

For an individual to discover their vocational personality, a balance must be found between their personal interests, personal strengths, and possible careers (Savickas, 2005). For high school students interested in entering the workforce directly following high school graduation, this vocational personality must be recognized early. Packard, Leach, Ruiz, Nelson, and DiCocco (2012) were interested in how students enrolled in CTE programs during high school and the students' ability to transition from school to work. Packard et al. (2012) gathered data from 40 CTE high school graduates from three CTE high schools in northeast United States. A baseline survey was given to the graduates to gather information regarding their current and anticipated work, educational, and career activities. Follow-up interviews were then conducted 6 months following graduation and 1 year following graduation. The interviews were semi-structured, and each participant was asked about their career plan, work and educational activities, and

support systems following graduation from high school. Throughout the interview, the participants were reminded of their answers from the baseline survey given at their high school graduation.

Four themes emerged from the data gathered by Packard et al. (2012). First, CTE students who were unable to find work following graduation adjusted their career plans and were able to adapt; whereas, students who found work in their CTE field of study were able to develop careers in that specific field. Second, approximately half of the participants expressed financial barriers to college access that limited their career options; whereas, the other half of the participants experienced expansion to their career goals because of college access. Third, most of the participants in the study experienced a loss of support following college. Finally, for a limited number of the participants, the CTE program they participated in during their high school career served only as a backup plan for career attainment. According to Packard et al. (2012), the most startling finding was the loss of support following high school. Because of this finding, the authors suggested CTE and cooperative education programs should consider extending their support into the year following high school graduation.

Rigorous CTE Coursetaking and Programs

Career and Technical Education (CTE) courses used to be reserved for students not destined for college (Dare, 2005). Within recent years, CTE has expanded to include rigorous academic coursework and college preparatory courses to help prepare students for both college and the workforce. In 2005, Dare described four CTE programs that combine rigorous academic curriculum with CTE courses (i.e., High Schools That Work, Tech Prep, College and Career Transitions Initiative, Project Lead the Way).

High Schools That Work is a program focused on preparing all students for postsecondary life including further education and the workforce. This program developed seven key tenets: (a) rigorous CTE and academic courses, (b) high expectations, (c) teacher collaboration, (d) work-based learning, (e) actively engaged students, (f) guidance, and (g) a culture of continuous improvement. High Schools That Work replaced the general high school courses with rigorous academic courses paired with CTE courses. Bottoms and Anthony (2005) studied nine High Schools That Work schools and discovered that this model significantly raised academic achievement in students. For instance, 90% of students enrolled in High Schools That Work later enrolled in a postsecondary institution compared to 75% of those who were not enrolled in High Schools That Work.

Dare (2005) described a program called Tech Prep. Tech Prep focuses on combining academic courses with CTE courses and high schools partner with postsecondary institutions to help support students' transition to college. Dare explained that Tech Prep has helped institutions align their courses and programs to bridge the gap between high school and postsecondary institutions. Furthermore, it has served as a catalyst to expand dual credit programs across the country.

The third program discussed by Dare (2005) is the College and Career Transitions Initiative. The College and Career Transitions Initiative is focused on building the relationships between community colleges and high schools to help with students' transition into postsecondary education and the workforce. Furthermore, College and Career Transitions Initiative hopes to help improve academic performance at both the high school and postsecondary level. Some of the College and Career Transitions

Initiative goals include increasing student success, helping in the transition from high school to college and careers, and offering dual credit opportunities.

The final CTE program discussed by Dare (2005) is Project Lead the Way. Project Lead the Way offers rigorous coursework specifically for students interested in pursuing engineering careers following high school. This program has been integrated into over 1,000 schools across the United States. Bottoms and Anthony (2005) reported that students who participated in Project Lead the Way completed higher-level math and science courses and demonstrated skills to solve real-world problems using technology and group work.

In 1988, Phi Delta Kappan published *The Forgotten Half: Non-College Youth in America*; this article contended that the focus of high schools across the United States was on students who planned to attend higher education following graduation from high school. This article stressed that there was a forgotten group of students who were non-college bound, and the United States needed to focus on creating a program that prepared these students to successfully transition into the workforce following high school graduation. In 2014, Schwartz wanted to determine if there was still a forgotten half, and if there was a forgotten half, he wanted to determine an adequate way to service those students.

According to Schwartz (2014), the term *non-college-bound* is no longer used in society's vocabulary. Recent statistics report that 90% of high school students report they are going to attend a college or university (U.S. Department of Education, 2011). Seventy percent of these students actually enroll in a college or university, but only 32% of U.S. citizens in their mid-20s have attained a college degree. Furthermore, an

additional 10% of U.S. citizens in their mid-20s have yet to acquire a recognized occupational certificate, and another 10% have failed to graduate from a two-year college. These data mean that a little over half of the population in their mid-20s does not have meaningful postsecondary credentials.

Because of these statistics, Schwartz (2014) concluded that there is indeed still a forgotten half, and the United States needs to create CTE programs that invest in rigorous CTE pathways alongside rigorous academic curriculum. Furthermore, Schwartz (2014) analyzed two datasets to support this conclusion: Data projections from the Georgetown University Center on Education and the Workforce had findings that stated nearly a third of the jobs in the next decade will be "middle skill." Also, data from two studies from the Organization for Economic Cooperation and Development resulted in findings that suggested youth living in countries with strong vocational education programs are able to successfully transition into the workforce following high school graduation. Because of these findings, Schwartz (2014) emphasized the importance of implementing new models of CTE that combine rigorous academics with career training.

Several models combining career training with rigorous academic courses already exist. For instance, there are approximately 3,000 career academies in the United States, and roughly 500 of these academies operate under the National Academy Foundation. National Academy Foundation academies prepare youth for jobs in the following career fields: (a) finance, (b) engineering, (c) information technology, (d) health science, and (e) hospitality and tourism. Upon completion of one of the National Academy Foundation academies, students are guaranteed a paid internship with one of the foundation's corporate sponsors. High Schools That Work is another national network whose goal is

focused on providing quality vocational training combined with rigorous academic work, specifically in mathematics and science. High Schools That Work has more than 1,200 schools across the United States.

The standards movement has challenged school districts to abandon the lower-level academic courses that vocational students were often placed. Because of the standards movement, many states have changed their CTE programs to include rigorous academics with the vocational courses. The most successful CTE programs tend to have the following aspects: (a) they are designed to assist students in continuing to higher education, (b) they are designed to serve a diverse set of students, and (c) they involve outside businesses in the program design (Schwartz, 2014).

European countries (i.e., Austria, Denmark, Finland, Germany, the Netherlands, Switzerland) have developed effective vocational programs. The systems developed in these countries service a wide range of students, and the pathways lead to qualifications in a broad range of occupations. Furthermore, these programs combine classroom instruction with real world experience in the workplace. Because of the workplace experience, there is employer involvement in the design of the curriculum for each career field. Finally, the programs in these European countries acknowledge the need to provide youth with options to pursue further education if they choose (Schwartz, 2014).

Schwartz (2014) suggested six principles that would be needed to build a pathways system in the United States: (a) all students would be provided the same academic coursework through 10th grade or until the age of 16; (b) beginning in middle school, students would receive exposure to the workplace and a higher need would be placed on career counseling; (c) employers would be involved in the curriculum design

and employers would provide internships with pay; (d) academic skill development would be integrated in each pathway; (e) pathway choice would be decided by the student and family; and (f) pathways would provide opportunities for higher education. Using these six principles, Schwartz (2014) suggested three options to organize these programs. The first option would be to expand the career academy model.

This career academy model is already occurring in multiple high schools across the United States where schools house these academies with a career focus. The academies are designed to integrate career preparation with rigorous academic coursework. Often, career academies partner with organizations in the community to provide the students with an internship. Data show that career academies increase student achievement and graduation rates for at-risk students (Bloom & Unterman, 2013). This option would require students to choose a career area upon entering high school, and their high school coursework would be organized around this choice.

Schwartz (2014) suggested a second option of developing a bundle of four-year CTE courses that work in tandem with the academics-only pathway that is currently used in the United States. The National Academy Foundation career academy that was discussed previously provides a useful model to this option as does Linked Learning. Linked Learning has created a system that meets the academic requirements for students to enter a 4-year university in California and to meet the technical needs to enter a career area.

The final option suggested by Schwartz (2014) would follow a European model with a stronger difference between middle and high school. Students would not choose a career pathway until their 10th-grade year of high school. Until then, students would be

enrolled in courses to help them develop a solid foundation in academic areas like writing, reading, and mathematics. For this option to work, the last two years of high school would need to be linked to an additional year or two of postsecondary training or education. Furthermore, while students are in high school, this option would include paid internship and summer work opportunities in the students' pathways of choice.

The Gates Foundation has established early college high schools across the United States that follow a similar model. Students enrolled in early college high schools are taking college-level courses while in high school, and upon graduation from high school they have completed at least one year of college credit. Some students graduating from early college high schools have completed a two-year associate's degree.

According to Schwartz (2014), it is essential for all students to graduate high school with an academic foundation, and this goal cannot be achieved through a narrow, occupationally-only focused education system. From his research on vocational pathway systems such as the European systems, Schwartz determined that it is possible to build a system that educates all youth for a vocation following high school. Furthermore, he acknowledged that all vocations require preparation, and this preparation is developed through a partnership between educators, employers, and employee associations. According to Schwartz (2014), "the legacy of a two-tiered, heavily tracked education system that predictably replicates social and economic inequality from one generation to the next" (p. 41) will remain until the United States builds a CTE system that spans the occupational spectrum with curriculum that is rigorous and robust to prepare and support youth to make adequate postsecondary choices in regards to career choice following high school.

Disparities in CTE Enrollment

Despite efforts to raise the academic rigor and appeal to diverse student populations in CTE programs across the United States, significant differences are still evident between students enrolled in CTE and students not enrolled in CTE. Palmer and Gaunt (2007) conducted a study to determine the difference in academic achievement, socioeconomic status, and household living arrangements between CTE and non-CTE students. The authors surveyed all seniors at seven high schools serviced by an area career technical center in Michigan. A total of 451 students responded to the survey with 126 enrolled in the area CTE center and 325 not enrolled in the area CTE center. After analyzing the survey results, Palmer and Gaunt (2007) discovered that CTE students were approximately one grade classification (i.e., A, B, C, D, and F) behind their peers who were non-CTE students. Furthermore, non-CTE students were financially better off than students enrolled in the area CTE program. According to the survey results, only 17.4% of non-CTE students report having "just enough [money] to get by" compared to 24.8% of CTE students (Palmer & Gaunt, 2007, p. 39). Finally, students not enrolled in the CTE program lived with both parents at a much higher rate than did students enrolled in the area CTE program (57% vs. 38.9%). Career and technical Education (CTE) students were also found to live in households with neither parent present at a more frequent rate than non-CTE students. Career and technical education (CTE) teachers must continue to understand the population of students their programs are attracted to and enhance the enrollment of their courses.

Over the last several decades, the composition of the workforce in the United States has shifted drastically due to the increase in female participation in the labor force.

The gender gap has decreased due to the increase by females, but the number of males participating in the labor force still exceeded females by 12% (U.S. Census Bureau, 2012). Even though the gap has narrowed and more females are gaining employment in the labor force, the female-dominated fields lend to lower paying salaries, and the social status surrounding female-dominated occupations in the labor forces tend to carry a lower or more negative connotation (Evans & Diekman, 2009).

Because of this concern, policy makers in education have centered some of their reform on gender equity in CTE. Title IX of the Educational Amendments of 1972 addressed discrimination in the form of gender by mandating access to all forms of education for all sexes (Eardley & Manvell, 2006). Following Title IX, the Carl D. Perkins Career and Technical Education Improvement Act of 2006 required states to collect data concerning gender participation in CTE programs and devise plans to improve participation in the CTE programs (National Alliance for Partnerships in Equity, 2006). Although women now earn more postsecondary degrees than men do, a discrepancy in gender regarding secondary CTE enrollment still exists (Eardley & Manvell, 2006; National Women's Law Center, 2005; National Center for Education Statistics, 2012; Sayman, 2007). For instance, males are overrepresented in traditional male-based fields like engineering, construction, and agriculture, and they are underrepresented in traditional female-based fields like health professions, cosmetology, and childcare (National Women's Law Center, 2005).

Career and technical education (CTE) courses and programs have the potential to be a pivotal tool in closing the gender gap associated with certain occupations. Almost every high school student takes at least one CTE course before graduation and the

average high school graduate takes four CTE courses (National Center for Education Statistics, 2003). The coursetaking patterns established in high school influence an individual's decision on his or her college degree or industry training, which in turn influences his or her career opportunities (National Research Center for Career and Technical Education, 2013). Trying to determine a relationship between gender, CTE coursetaking, and future salary, Fluhr et al. (2017) conducted a quantitative study using data from a CTE database in a state located in the Midwestern United States. Data were analyzed on students who were enrolled in CTE programs at traditional urban and rural high schools from 2010 to 2012. A total of 269,072 students were used in the final sample with 46.7% being female and 53.3% being male.

Fluhr et al. (2017) discovered that gender was a significant predictor of CTE coursetaking. They ascertained that male students were more likely to take a gender-nontraditional CTE course than were females and females were still being over-represented in traditional female-based fields such as Human Services and Health Science. When examining gender wage gaps, Fluhr et al. (2017) found the gap to be attributed to the CTE program area of choice instead of gender. The authors suggested that schools should provide students with specific information related to salaries in different occupations so students can make adequate choices when deciding CTE courses or paths to take.

According to the previous research, CTE courses could play a key role in closing the gender gap associated with different occupations, but according to Lazar and Slate (2018), CTE coursetaking can also have a tremendous impact on students in special education and students in poverty. Following the adoption of House Bill 5 in 2013 by the

83rd Texas legislature in regular session, Lazar and Slate (2018) wanted to discover if the percentage of CTE coherent sequence graduates (e.g., a graduate "enrolled in a coherent sequence of career and technical education [CTE] courses as part of a four-year plan of study" Texas Education Agency [2017], p. 8) participating in special education services changed following the implementation of House Bill 5. In addition, they examined the change in the numbers of students coded as living in poverty. The researchers conducted a quantitative study, and data were extracted from the Texas Academic Performance Report from the Texas Education Agency.

Whereas Lazar and Slate (2018) discovered that CTE course enrollment increased drastically for both students in poverty and students in special education, the gain was larger for students in special education. The increase in CTE coursetaking was demonstrated, and the authors suggested future research on determining the actual postsecondary readiness of these students. Furthermore, Lazar and Slate (2018) urged others to conduct qualitative studies to determine if employers believe these students have the necessary skills to enter into the workforce.

Researchers have concluded that students with disabilities show more postsecondary success in employment if they are enrolled in CTE courses during high school (Harvey, 2001; Wonacott, 2001). Although students in special education have a higher success rate when enrolled in CTE courses, CTE teachers lack preparation in teaching these students (Haber & Sutherland, 2008). In 2001, Harvey conducted a study that included 236 CTE teachers in Pennsylvania; results indicated that CTE teachers felt less effective in teaching students with special needs. To combat this issue, Haber and Sutherland (2008) recommended a four-step process for teachers to be more effective in

teaching students with special needs in the CTE classroom: (a) the CTE teacher should assist in placing the students in an adequate CTE setting; (b) the CTE teacher should implement accommodations listed in the students' Individual Education Plan; (c) the CTE teacher should regularly assess the quality and appropriateness of the students' Individual Education Plan; and (d) the CTE teacher should advocate for their students with special needs.

CTE Teacher Certification and Professional Development Needs

In 2013, Cannon, Duncan, and Kitchel conducted a study to analyze the levels of efficacy in the areas of teaching and learning of Idaho CTE teachers who were traditionally certified versus CTE teachers who were alternatively certified. Four hundred forty-six CTE teachers with 10 or more years of experience participated in an online survey, which contained 32 questions with a 5-point response scale. Cannon et al. (2013) concluded that traditionally certified teachers felt more confident in (a) their ability to maintain effective classroom management, (b) their ability to teach adequate safety practices in a lab, and (c) their ability to utilize computer technology in their teaching. Alternatively certified teachers felt more confident in (a) their ability to use non-computer technology in teaching, (b) their ability to teach adequate safety attitudes in the classroom, and (c) their ability to teach problem-solving and decision-making skills. Cannon et al. (2013) noted the findings that alternatively certified teachers were more confident in their ability to teach problem-solving skills and the use of teaching without computers and attributed these findings to the fact that most alternatively certified teachers have direct experience in the industry for the content they are teaching and have worked extensively with technology not involving computers.

Furthermore, Cannon, Kitchel, and Tenuto (2013) conducted a study regarding the professional development needs of Idaho CTE teachers based on the perceptions of the state's superintendents. An online survey was developed following an intensive review of literature related to professional development needs of secondary CTE teachers. Survey items were divided into two categories: teaching and learning and program management. A total of 56 items were identified with 32 items falling into the category of teaching and learning and 24 items falling into the category of program management. Two Likert type scales were developed to address each item within the survey: (a) level of significance for the CTE teacher and (b) level of competence of the CTE teacher. Furthermore, survey items were created to address personal information of the respondents and school district characteristics. The survey was sent to a total of 150 superintendents in Idaho, and 78 superintendents participated in the study.

Once the survey closed, collected data were analyzed using SPSS and MS Excel, and the mean weighted discrepancy scores were used to determine superintendents' perceptions of priority areas for CTE teacher professional development. For the first research question regarding Idaho superintendents' educational backgrounds and characteristics, the researchers found that most participants were male (76.9%), most participants had been classroom teachers (97.4%), and most participants had more than 10 years of administrative experience. Furthermore, most of the participants were older than 45 (84.6%), and only 10 of the participants had been a CTE teacher. Most of the superintendents participating in the survey had been high school teachers (n = 62).

Findings for the second research question regarding Idaho superintendents' perceptions of level of importance related to CTE teaching, learning, and management

ranked the following competencies as the areas of highest importance: (a) teaching students to think creatively and critically, (b) teaching adequate safety techniques in the classroom, (c) motivating student learning, (d) teaching proper safety strategies in the lab, and (e) teaching decision-making skills and problem-solving skills. The third research question regarding Idaho superintendents' perceptions of CTE teacher competence in the area of teaching, learning, and management showed the following items to have the highest mean score: (a) teaching adequate safety techniques in the classroom, (b) teaching adequate safety strategies in the lab, (c) conducting parent/teacher conferences, (d) having classroom management, and (e) having knowledge of appropriate procedures when traveling with students.

Finally, the fourth research question regarding Idaho superintendents' perceptions of important CTE teacher professional development showed the following as priorities for CTE teacher professional development: (a) integrating reading into the CTE curriculum, (b) integrating writing into the CTE curriculum, (c) motivating student learning, (d) integrating math into the CTE curriculum, and (e) teaching students to think creatively and critically. All of these professional development priorities as noted by the superintendents were from the teaching and learning category; the highest rated program management item was ranked eighth. Findings from this study showed the importance of integrating core subjects with CTE courses. It should be noted that in the category of program management, superintendents rated these items much lower than teachers did when reviewing previous research. Further research should be conducted to determine why there is a discrepancy in superintendent and teacher perceptions of the needs about program management in CTE.

Summary

In Chapter II, I reviewed research regarding CTE, and the important role is plays in preparing students for life following high school. The following areas were reviewed: (a) history of CTE in the United States, (b) history of CTE in Texas, (c) accountability for CTE programs, (d) student choice in coursetaking, (e) rigorous CTE coursetaking and programs, (f) disparities in CTE enrollment, and (g) CTE teacher certification and professional development needs.

Although CTE has transformed throughout history, this chapter shows that CTE programs still have room for improvement. I reviewed both qualitative and quantitative studies in this chapter and reviewed the extensive history of CTE programs. Much research has been done regarding curriculum development, CTE teacher professional development, and CTE enrollment. Furthermore, accountability measures have been put in place to help define college and career readiness for educators, but little research has been done to determine if students are indeed ready to enter the workforce following high school. My study will focus on teacher perceptions regarding student career readiness. In Chapter III, I will describe the procedures that will be utilized to conduct a qualitative study on teacher perception regarding student career readiness in a given field of study.

CHAPTER III

Method

Overview

The purpose of my qualitative case study was to explore the perceptions of CTE high school teachers regarding student career readiness following certification attainment in a specified CTE course (i.e., animal science, welding, health science, culinary arts, and law enforcement). In this chapter, I explain the design of my study and the process I used to collect and analyze data to answer my research question. This chapter includes the following sections: (a) research design, (b) selection of participants, (c) instrumentation, (d) data collection, and (e) data analysis.

Research Design

Qualitative researchers attempt to gain insight surrounding specific social processes and strive to interpret the meaning people bring to certain experiences within their natural setting (Connolly, 1998; Onwuegbuzie & Leech, 2007). For this qualitative research study, a collective case study (e.g., multiple case study) design was utilized to obtain data regarding teachers' perceptions of students' career readiness following certification attainment in a specific CTE course. Johnson and Christensen (2012) describe case study research as a bounded system in which the researcher examines the interrelated parts of a case within a set of boundaries that define what the case is and is not. For this study, multiple cases were studied to create a collective case study design which provides a structure to allow the researcher to acquire insight surrounding the research question across different settings because of the researcher's ability to compare

the different cases (Johnson & Christensen, 2012; Onwuegbuzie & Leech, 2007; Stake, 1995).

According to Yin (2014), replication logic is used in a collective case study design because results are more likely to be generalized from multiple cases than from a single case (Johnson & Christensen, 2012). Yin (2014) explains that "only with [continuous] replication of duplication [between cases are] the original findings considered to be robust" (p. 57). Therefore, careful selection of the sampling scheme and participants for qualitative collective case study design is essential (Onwuegbuzie & Leech, 2007). Furthermore, Yin (2014) explains that there are five components to effective case study design: (a) developing questions for the case(s), (b) developing propositions for the study, (c) defining the unit(s) of analysis, (d) linking the data to the developed propositions of the study, and (e) developing criteria for interpreting the findings.

In this study, five high school teachers were selected based on the CTE course taught and their years of experience. In this study, the selected teachers taught a CTE course that ended in job certification for their specific course of study. Each teacher studied was utilized as a different case study (Johnson & Christensen; 2012) to determine his or her perceptions of career readiness in high school students following career certification in a number of different areas. Identifying teachers' perceptions of students' career readiness could lead to recommendations for improving CTE programs and courses to help students transition to life following high school.

Selection of Participants

The selection of participants or sampling of a population is the process of taking a smaller subset (i.e., sample) of a larger group (i.e., population) and studying the sample to draw conclusions about the population based on the sample selected (Johnson & Christensen, 2012). The sampling of a population or selection of participants encompasses a myriad of decisions by the researcher: (a) determining the setting where the research will take place, (b) determining the participants who will be interviewed or observed, (c) determining what the participants will be interviewed or observed doing, and (d) determining the process of the events the participants will experience while in the setting (Creswell, 2014; Miles, Huberman, & Saldana, 2014). In qualitative research, nonprobability sampling is used as the researcher seeks to understand the meaning the participants have developed through their experiences with the selected setting or situation (Onwuegbuzie & Collins, 2007; Merriam, 1998).

According to Miles et al. (2014), qualitative research samples are often smaller in size and purposive as the participants are embedded within the setting being studied. Furthermore, setting boundaries for the selection of participants is a key component to remaining within the area of study (Miles et al., 2014). The selection of participants for this qualitative multiple case study were based on decisions regarding (a) sampling strategy, (b) sampling size, and (c) criteria for participant selection.

Sampling strategy. Mixed purposeful sampling was used in this study as more than one sampling strategy was used when selecting participants (Johnson & Christensen, 2012). A nested sampling design was used in the selection of participants for this study; according to Onwuegbuzie and Leech (2007) this sampling design strategy facilitates

reliable relationships between two or more representatives creating a subgroup to represent the full sample. Participants for this study were also selected via a combination of strategic and purposeful sampling and convenience sampling schemes due to the selection process being based on the purpose of the research question and accessibility of participants due to location and immediacy (Miles, Huberman, & Saldana, 2014; Onwuegbuzie & Leech, 2007).

Sampling size and criteria for participant selection. Creswell (2014) noted that three to five participants are adequate for case study research; therefore, five participants were chosen based on the content area in CTE that each participant taught (e.g., animal science, welding, health science, culinary arts, and law enforcement). Furthermore, to be selected as a participant, the CTE course stream taught ended in career certification in the specified field (i.e., animal science, welding, health science, culinary arts, and law enforcement). Students within the CTE course streams chosen took certification tests during their program of study. Figures showing course sequence and certification options are located in Chapter IV. Chosen participants were teachers in the high school CTE setting and had at least 5 years teaching experience in their content area.

Instrumentation

To collect data in this multiple case study, open-ended interviews with each participant were conducted. As noted by Johnson and Christensen (2012), "Qualitative interviewing allows a researcher to enter into the inner world of another person and to gain an understanding of that person's perspective" (p. 202). Because "standardized open-ended interviews" were utilized, all interview questions were determined in

advance, were asked in the same order, and were provided to all participants using an open-ended format (Johnson & Christensen, 2012, p. 200).

To construct the interview questions, I focused on three of the four types of interview questions cited by Stake (2006): (a) questions surrounding the research, (b) questions that focus on the research problem, and (c) questions about current problems within the research. Stake's (2006) framework was used to create these questions, and I used related literature and the research question to formulate relevant interview questions.

To construct the interview protocol, I asked experts to review the questions and provide feedback. I consulted with my dissertation chair to review the questions and to ensure they were aligned with the research question and best practices in data collection. Content experts were knowledgeable about the concepts being asked and included a high school principal knowledgeable about CTE programs. I asked these experts to determine the appropriateness of the questions as they relate to the study; this approach helped to legitimize the findings (Gall, Borg, & Gall, 2003). Next, I conducted a pilot interview with one expert who was the CTE department chair, and this person was in a similar role to my selected participants. I conducted the pilot interview to test the questions, determine the appropriate order, and to gather feedback for necessary revisions. The instrument is located in Appendix A.

Role of the Researcher

For this qualitative case study, I, the researcher, was the instrument used for data collection and analysis. Through open-ended semi-structured interviews, I was the instrument used to collect all data. Furthermore, my ability to engage the participants and generate conversation contributed to the quality of data collected. Because of these

factors, the protocol used for my interviews became critical to ensure the study was of quality qualitative design. According to Yin (2014), having adequate protocol and interview conditions can be negated if the researcher enters the study with a preconceived position. Therefore, it is important to be open to contrary evidence throughout the data collection and analysis phase (Yin, 2014). Furthermore, striving for high research ethics by protecting the human subjects involved, by participating in robust triangulation, and by using member-checking strategies played a key role in the validity of this study.

During the data collection and analysis phase of this study, I attempted to take on both an emic and etic perspective of the data. According to Johnson and Christensen (2012), the emic perspective offers an insider's perspective whereas the emic perspective provides perspective of the data from the outside. Specifically, I took on the emic perspective of a researcher when conducting the extensive review of literature related to career readiness and by searching to answer the research question regarding teacher perceptions of student career readiness.

The nature of my career as an assistant principal, specifically at the school where I was conducting my research, contributed to my emic perspective of the current study. Furthermore, all of my primary and secondary schooling took place in the public school setting in Louisiana. I also worked for 7 years as a high school math teacher and 1 year as an instructional coordinator in two different Title I public high schools in south Texas where I interacted regularly with students who were trying to determine their career goals following high school graduation. Because these experiences shaped my beliefs and attitudes regarding my topic of study, I brought several assumptions and biases to the research, which were discussed in detail in Chapter I. Also, participant reactivity and

trustworthiness were a threat to the findings as I am an assistant principal at the school where data were collected. To combat this threat, I held all interviews in a neutral setting not located on the school campus and during the teachers' spring break.

Data Collection

I used the four principles outlined by Yin (2014) to guide the collection of data. For example, I used multiple sources of evidence by having multiple cases to compare to develop converging themes across cases. Second, a database in Excel was utilized for this multiple case study to organize and document the data collected through participant interviews. Third, I sustained a sequence of evidence for each case study to assist outsiders in understanding the steps linking the initial research question to the case study conclusions. Finally, caution was used when utilizing electronic databases by storing videos within my storage profile at the academic institution with a password protected folder. Interview transcripts were stored in a password protected folder, and university guidelines were followed for deleting the files after the study had been conducted. Furthermore, no identifying participant information was audio recorded or kept with the transcript.

Regarding the procedures, I requested approval for the study from the university IRB at my academic institution and the institution where participants were selected, as shown in Appendix D. Next, I recruited participants based on the selection criteria described in the Participant Selection section. Prior to conducting interviews, I met with the participants face-to-face to provide them with the details of the study and the role they would play in the study. Furthermore, this discussion included details regarding their informed consent and reviewed that they may withdraw from the study at any point.

Prior to conducting any interviews, participants were required to check the consent form agreeing to participate in the study.

Three of the initial interviews were conducted face-to-face in a neutral setting away from the school (coffee shop) and no students present. Two initial interviews were conducted via telephone. The interviews were all audio recorded using an electronic device (i.e., iPhone). Within five business days following the initial interview, I met with each participant via telephone and inquired if there were additional comments they wished to add from the time of the initial interview.

During the initial interview, each participant was asked the same questions in the same order to increase the comparability of participant responses using the "standardized open-ended interview" approach (Johnson & Christensen, 2012, p. 200). Additional questions were allowed by the participants and probing questions were used by the researcher when elaboration was needed. All initial interviews lasted approximately one hour with the follow up session lasting no longer than 30 minutes.

Data Analysis

Interview data were utilized in the form of transcripts. A professional transcription agency was employed to transcribe the interviews from the recordings. After checking the transcripts for accuracy, I used Glaser and Strauss's (1967) three stages to complete a constant comparison analysis on the collected data: (a) open coding, (b) axial coding, and (c) selective coding. Constant comparison analysis is also referred

to as coding, and the purpose is to generate a set of themes from the data being analyzed (Leech & Onwuegbuzie, 2008).

Open coding. Leech and Onwuegbuzie (2008) describe the stage of open coding as chunking the initial data and providing the chunks with descriptors. For the open coding stage, I began by using Saldana's (2016) initial coding method. Saldana (2016) breaks down coding into cycles, and initial coding occurred in my first cycle of coding. Initial coding provides the researcher with a starting point that leads to topics that need to be explored further and gives the researcher an opportunity to reflect on the content being studied (Glaser, 1978; Saldana, 2016). There are three components to initial coding: (a) the search for processes (i.e., participant actions that have a consequence or that have experiences attached to them), (b) the search for characteristics and dimensions of groupings (i.e., theoretical ideas that bring together similarly coded words or phrases), and (c) the debriefing (i.e., write an analytic memo to reflect on the process; Saldana, 2016). Codes developed at this stage related to each other, and I began developing a codebook to capture codes and their meanings (Glaser, 1978; Saldana, 2016; Strauss & Corbin, 2015).

Following the initial coding, I completed another round of first cycle coding called descriptive coding (Saldana, 2016). By using descriptive coding, I assigned a word or short phrase describing the key concept of a significant meaning statement (Saldana, 2016). According to Wolcott (1994), "Description is the foundation for qualitative inquiry, and its primary goal is to assist the reader to see what you saw and to hear what you heard in general rather than scrutinize the nuances of people in social

action" (p. 55). Because of this goal, it is important that the codes developed identify the topic and that they not condense the content (Saldana, 2016; Tesch, 1990).

Axial coding. As identified by Leech and Onwuegbuzie (2008), the second stage of constant comparison analysis is axial coding, which takes the codes created in the first stage and groups them into similar categories. Saldana (2016) expressed that axial coding is a method of second cycle coding that extends the analytic work from the first cycle. The purpose of axial coding is to determine which codes are most important and to reorganize the data set created through the first cycle of coding (Boeije, 2010; Saldana, 2016). Through axial coding, I grouped similarly coded data to reduce the amount of initial codes developed and sharpen codes to better describe the topics identified (Glaser, 1978; Saldana, 2016). The ultimate goal through this method was to develop saturation where no new properties or topics can be pulled from the data (Saldana, 2016; Strauss & Corbin, 1998). As with each cycle, the codebook was revised. Finally, this stage ended with another analytic memo where I reflected on the process and the data analyzed.

Selective coding. Stage 3 of the constant comparison method, as described by Leech and Onwuegbuzie (2008), consisted of developing themes based on the coding completed in the first two stages. Saldana (2016) calls this stage *theming the data*, which is an outcome of coding and categorization. Themes created during this stage should bring meaning to the data and codes created in the first two cycles of coding (DeSantis & Ugarriza, 2000; Saldana, 2016). During this stage, I worked to develop phrases or sentences that encompassed the meaning of the phenomenon (i.e., career readiness) being studied (Saldana, 2016; van Manen, 2010).

Data interpretation. For interpretation, I used a few techniques to get to the essence of the data by using Saldana's (2016) focusing strategies such as the top 10 and the study's trinity. These techniques helped me focus on essential themes that emerged in the data and prioritize these themes and focus on their essential meanings (Saldana, 2016). Using Saldana's (2016) top 10 approach, I pulled out 10 passages or quotes from the data that I felt were the most important and that represented and answered my research question. I took these quotes and structured them in various ways (e.g., hierarchical, narratively, importance) to develop an outline and structure to my findings. I then used the study's trinity to help focus my research (Saldana, 2016). By using this strategy, I determined the three most important issues in my research and arranged these issues in a triangle with the most important issue being at the apex of the triangle.

After utilizing these focusing strategies, I presented my findings by themes and subthemes to answer the research question. The use of participant quotes provided context for these themes. Throughout the process, I used Excel to organize the meaningful chunks of data, codes, and the themes. I also maintained a codebook that described each code, its definition, and an example. Furthermore, analytic memos were written frequently to reflect on the process and stages of my research.

Summary

In this chapter, I have described the method I used to research teacher perceptions of student career readiness following participation in a CTE course stream. Included in this chapter and discussed were the (a) research design, (b) selection of participants, (c) instrumentation, (d) data collection, and (e) data analysis. Chapters IV and V present the findings and offer implications and recommendations for future studies.

CHAPTER IV

Presentation of Analysis and Data

The purpose of this study was to explore the perceptions of CTE high school teachers regarding student career readiness following certification attainment in a specified CTE course (i.e., animal science, welding, health science, culinary arts, and law enforcement). The previous chapter provided a description of the methodology used for this research study. A description of collective case study was given followed by the details of participant selection for the study. I explained the means of data collection and then explained the method used for data analysis. This chapter consists of the results obtained through the data collection and analysis described in Chapter III.

Chapter IV consists of a description of Grey High School and the larger school district of Sloan Independent School District (ISD) followed by a description of each case. Then, synthesis across the cases is discussed by first describing the analysis techniques used followed by the themes and subthemes developed through the cross case synthesis. Finally, the chapter ends with a summary.

Description of School and District

Sloan ISD is a rural school district located in south Texas that services approximately 35,500 students. According to state demographic reports, Sloan ISD is one of the fastest growing districts in the state of Texas. It currently services students through an early childhood center, 26 elementary schools, five middle schools, five junior high schools, five high schools, an alternative learning school, and a special needs center. The ethnic distribution of students in the district is as follows: 19.4% African American, 43.4% Hispanic, 27.3% White, 0.3% American Indian, 6.8% Asian, 0.1% Pacific Islander, and 2.6% are two or more races. Within the district, 41.3% of the student

population was considered economically disadvantaged and 44.7% of the student population was considered to be At-Risk during the 2019-2020 school year. According to the Texas Academic Performance Report for the district, 26.6% of the students enrolled in Sloan ISD are also enrolled in a CTE program within the district with only 4.3% of the staff within the district teaching a CTE program.

For this study, I focused on five CTE programs within one high school, Grey High School. Grey High School opened in 2010, and at the time of the study there were approximately 2,700 students enrolled at the campus, which made it the largest high school within Sloan ISD. The ethnic distribution of Grey High School was as follows: 23.6% African American, 25.5% Hispanic, 37.9% White, 0.2% American Indian, 10.2% Asian, 0.1% Pacific Islander, and 2.4% two or more races. Of the total population of the school, 21.9% of the students were considered to be economically disadvantaged with 21.9% also considered to be At-Risk. There were approximately 140 teachers on the staff at Grey High School with 21 of those teachers teaching CTE courses. According the Texas Academic Performance Report for Grey High School, approximately 75.3% of the campus population were enrolled in one or more CTE courses.

Case 1: Animal Science

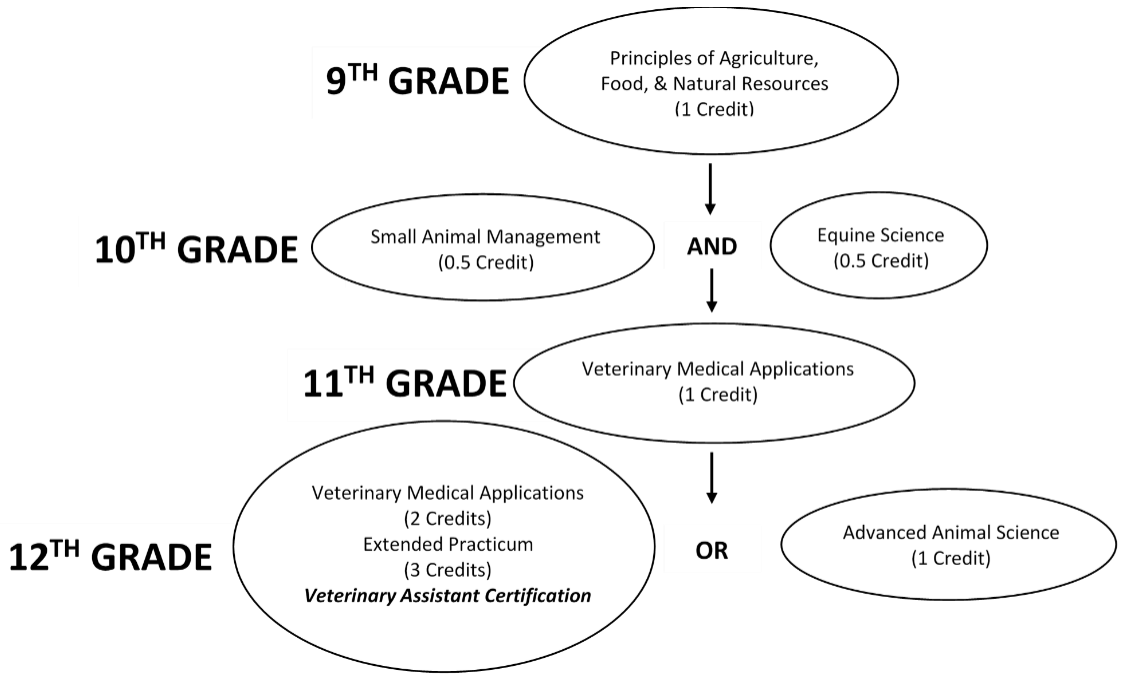
At the time of the study, Meredith was a 36-year-old female agricultural science teacher at Grey High School. She had been teaching for 13 years, and during her interview she explained, “my main goal has always been to build the vet med program.” Meredith had taught at three different schools in three different districts, and she explained that she had experienced varying support in all three locations. In the first district where she was employed as a teacher, Meredith only taught two sections of

animal science, and while working there, the state of Texas added a veterinary medical applications course to the curriculum as an option for students to take as an elective.

Meredith then moved to a different district in Texas where she expressed that she was given the task of building an animal science program, but she did not receive adequate support, which influenced her decision to leave after five years. Upon being hired at Grey High School, Meredith discussed that she immediately felt supported by the administration and that the principal wanted her to work hard to build a quality animal science program on campus. At the time of the interview, Meredith taught the courses required for students to receive a business/industry endorsement through the animal science pathway. These courses included small animal management, equine science, advanced animal science, veterinary medical applications, and the practicum attached to veterinary medical applications. See Figure 3 for a diagram showing the sequence of these courses for students starting in the ninth grade.

Figure 3

Course Sequence for the Animal Science Pathway Under the Business/Industry Endorsement



Case 2: Culinary Arts

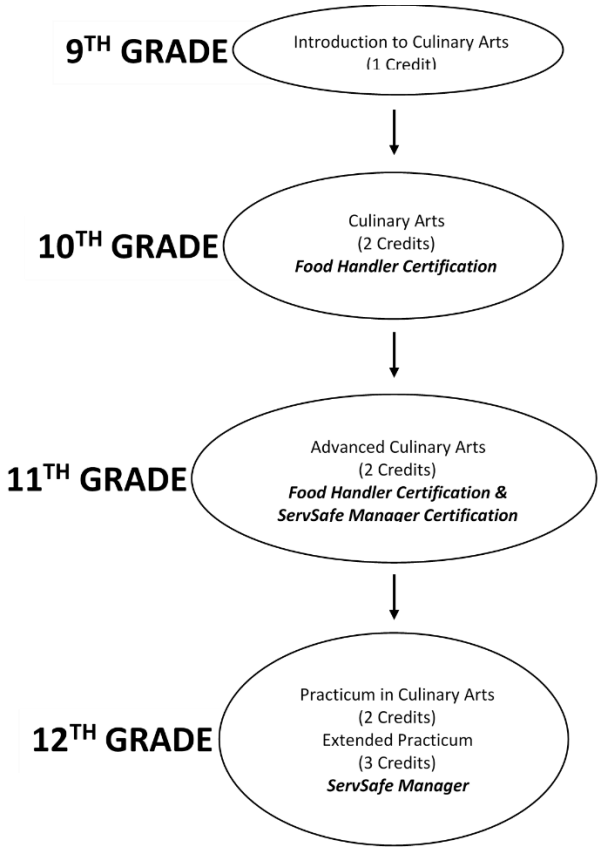
Miranda was a 61-year-old female currently teaching culinary arts at Grey High School where she started her teaching career nine years prior to the study. When discussing her life prior to being a teacher, Miranda took me back to her high school years where she participated in vocational office education learning how to type and do shorthand. She expressed that she was very good at these skills, but that she hated them. She said, "If I go to hell, my hell is gonna be a cubicle with a typewriter." She expressed that she had a "light bulb moment" at the age of 21 when her parents passed away, and she realized that "life is too short to be unhappy in [a] job." At this time, she made the decision to attend cosmetology school, and she was still licensed 30 years later in cosmetology as a hair dresser.

During her time as a cosmetologist, Miranda got married, had two children, and was a stay-at-home mom. Her divorce with her then husband forced Miranda to pursue a job, and she made the decision to pursue a degree in hotel restaurant management. Miranda was 50 years old when she crossed the stage to receive her undergraduate degree prompting her start in culinary arts. After receiving her degree, Miranda started by working in catering management. During this time, she made the decision to move because she wanted to get her daughter into a good school district. Miranda moved her family into Sloan ISD, and she began working in the cafeteria at an elementary school in the district.

She discussed how much she loved this job and how much she learned about running a school kitchen. Unfortunately, the district faced a reduction in force and Miranda was laid off. She became self-employed during this time and said, "I was just doing whatever I could to stay afloat." She continued sending her resume to district administrators trying to get a job within Sloan ISD again. She was eventually contacted about interviewing for the culinary arts teaching position at Grey High School, which had just opened. Miranda started the program at Grey High School, and the program has grown so much that three culinary teachers are needed on the campus. At the time of the interview, Miranda was teaching culinary arts, advanced culinary arts, and practicum in culinary arts with the other two culinary teachers teaching food science and introductory to culinary arts courses. See Figure 4 for a diagram showing the sequence of these courses students take to receive a business/industry endorsement in culinary arts.

Figure 4

Course Sequence for the Culinary Arts Pathway Under the Business/Industry Endorsement



Case 3: Law Enforcement

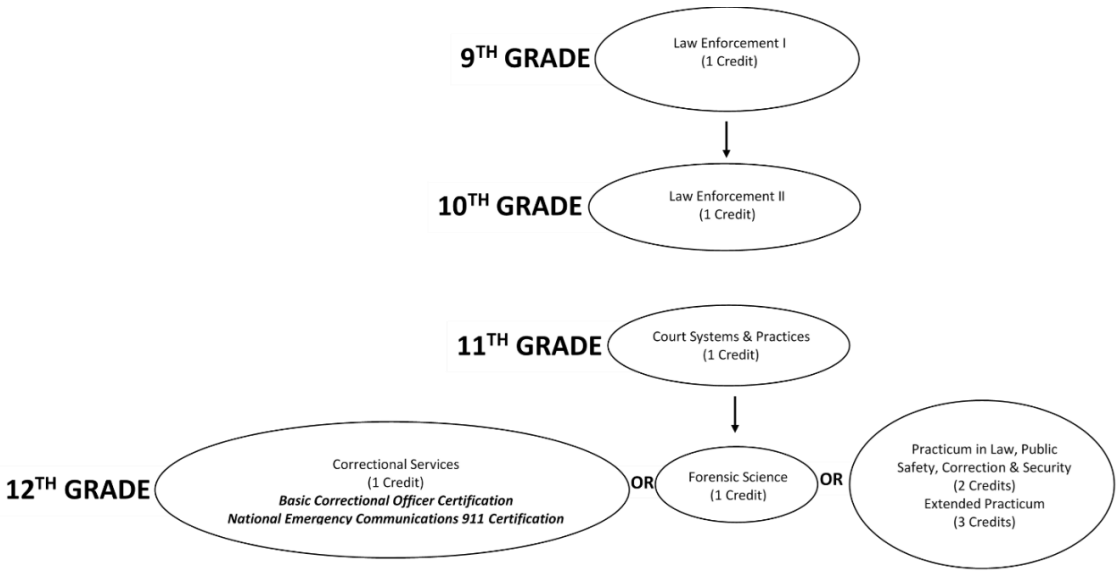
Christina was a 49-year-old female who ran the law enforcement program at Grey High School. She was born in Mexico and moved to the United States when she was in the first grade. She talked about her parents having a vision that her and her siblings would all go to college and work in public service. Because of this expectation, Christina applied for and attended a magnet high school specifically for law enforcement and criminal justice. During her high school career, she began to fall in love with law enforcement, and she expressed that she loved the court classes and learning about the

laws associated with law enforcement. Upon graduation, Christina worked as a law clerk, and she became a 9-1-1 dispatcher because she received her certification in high school. These jobs paid for her to go to college and to attend the police academy.

Christina worked as a police officer for 16 years, and she also worked in dispatching for a couple of years. One day she received a phone call from her field training officer who was a law enforcement teacher at a local high school at the time. The principal at the school was interested in Christina coming to teach law enforcement because Christina often responded to gang fights at the school, and she was impressed with how Christina interacted with the students. Christina expressed that she was conflicted at first because she aspired to be a sergeant, captain, lieutenant, or chief of police in law enforcement. She had never dreamed of being a teacher, but she made the decision to enter the classroom. The position at Grey High School came available, and she jumped on the opportunity to start her own law enforcement program at a new high school. At the time of the interview Christina had been at Grey High School for 10 years, and she was teaching Law Enforcement I, Law Enforcement II, Court Systems and Practices, and Correctional Services. See Figure 5 for a diagram showing the sequence of these courses students take to receive a public services endorsement in law enforcement.

Figure 5

Course Sequence for the Law Enforcement Pathway Under the Public Service Endorsement



Case 4: Health Science

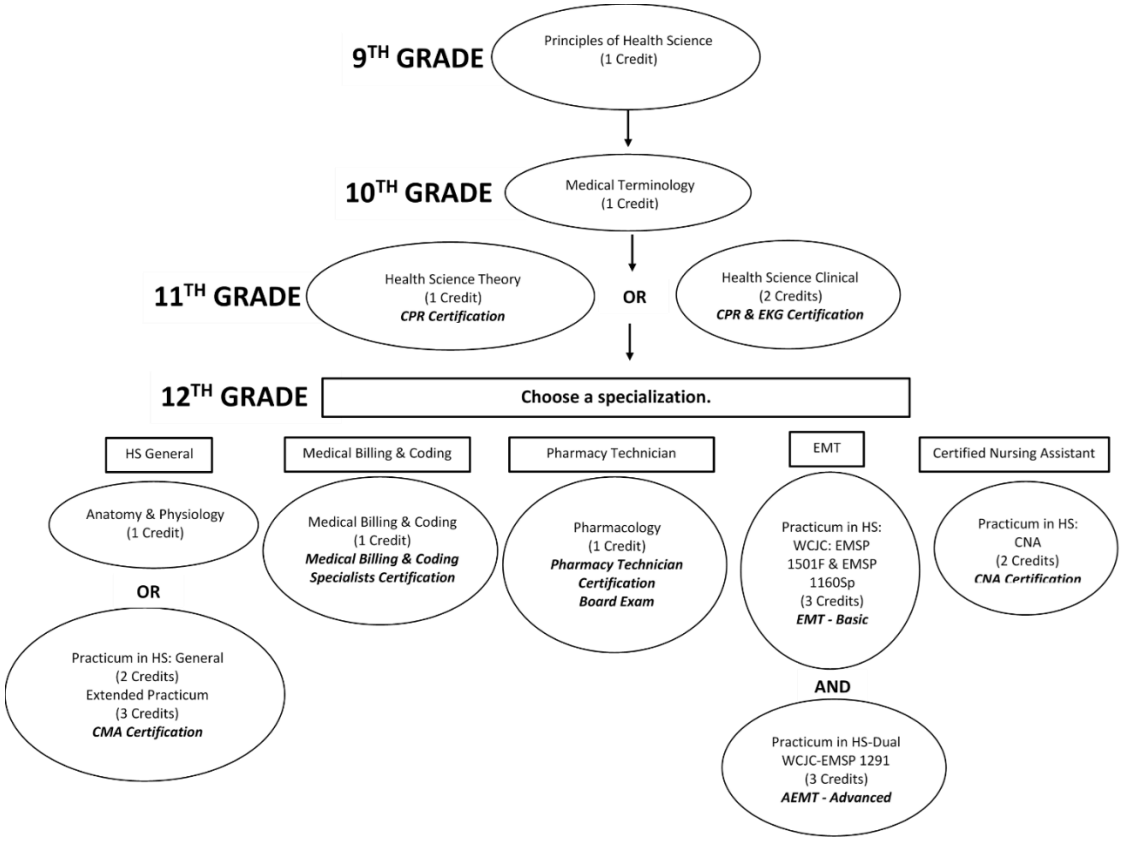
Izzie was a 56-year-old female educator who taught health science courses at Grey High School. At the time of the study, she had been in the public high school setting for 30 years, and at the beginning of her teaching career she also taught at the local community college. Prior to being in the classroom, Izzie was a street paramedic, and she served as a volunteer for several other paramedic organizations. She expressed to me that she received her paramedic certification in 1990 because she needed health care experience before she could become a certified CTE teacher as required by TEA.

Izzie received a master's degree in public administration, which prompted her promotion to executive director of a county E.M.S. service. She expressed that she became tired of the politics within this position, so she made the move into education. At the time of the interview, Izzie was teaching health science theory, pharmacology, health

science clinicals, and practicum in CNA. There were two other teachers who were part of the health science program and they taught principles of health science and medical terminology. See Figure 6 for a diagram showing the sequence of the courses students take to receive a public services endorsement in health science.

Figure 6

Course Sequence for the Health Science Pathway Under the Public Service Endorsement



Case 5: Welding

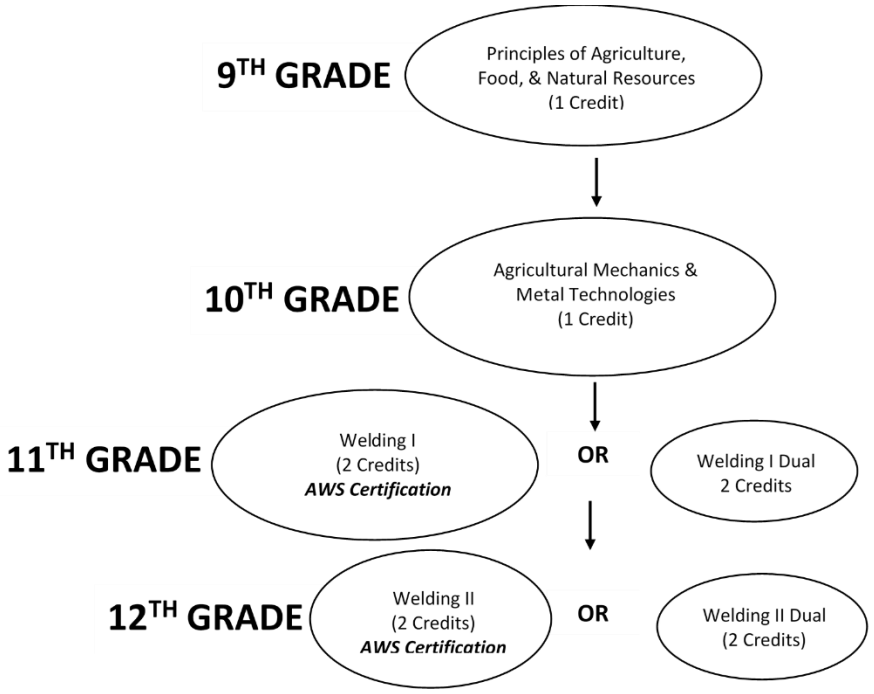
Derrick is a 43-year-old male who taught welding at Grey High School. At the time of the study, he taught agricultural science for approximately 16 years, and he started the welding program when Grey High School opened in 2010. Prior to working at Grey High School, Derrick taught agriculture for seven years at the alternative school in

Sloan ISD. Derrick has an undergraduate college degree in agriculture science, and he expressed that he always had a passion for agriculture.

Growing up, Derrick was a member of 4-H, and in college he worked on the university farm. Furthermore, his family owned a diesel fuel shop, so he "did everything mechanical growing up." At the time of the interview, Derrick taught Welding I, Welding II, Agriculture Structures, and Livestock whereas another teacher at Grey High School taught Principles of Agriculture and Agricultural Mechanics and Metal Techniques. See Figure 7 for a diagram showing the sequence of the courses students take to receive a business/industry endorsement in welding.

Figure 7

Course Sequence for the Welding Pathway Under the Business/Industry Endorsement



Cross Case Synthesis

Description of analysis. In the following sections, I describe the coding process that was used. These codes can be viewed in Appendix B and C.

Open coding. For the first phase of analysis I used open coding, which is described in Chapter III as chunking the initial data and providing the chunks with descriptors (Leech & Onwuegbuzie, 2008). First, I employed initial coding as outlined by Saldana (2016). I read through each transcript individually and separated the interviews into important chunks and searched for dimensions of groupings that could bring together similarly coded words and/or phrases. I wrote an analytic memo reflecting on the process and any data that stood out while doing this first round of open coding.

Next, I began setting up my codebook in Excel. I used an article written by Ose (2016) to help structure my data by putting each interview into a different tab with my codebook being a separate tab as well. I went through each interview line by line and assigned words or short phrases to the data that had been chunked or separated from the first round of open coding. At the end of this phase of coding, I had a total of 291 codes. See Appendix B for a list of codes created during this stage of coding.

Axial coding. For the second phase of analysis, I used axial coding, which takes the codes created in the first stage and groups them into similar categories. I began this phase of analysis by printing out the 291 codes created during the first phase of analysis. I used posters and began grouping similar codes together to reorganize the data from the first round of coding and to reduce the amount of codes. At the end of this coding session, I had reduced the number of codes to 20. See Appendix C for a list of codes created during this phase of analysis. I then edited my codebook and created a new tab where I combined all the interviews into one worksheet. I assigned the codes from this round of coding to the data in Excel, and I sorted the data by code. In this session I began

seeing certain themes emerge to use for the third phase of analysis. I ended this phase by writing an analytic memo to reflect on the process used.

Selective coding. In the final stage of analysis, selective coding was used to develop themes based on the coding completed in the first two stages. This phase of analysis is supposed to bring meaning to the data and the codes created in the prior stages. I looked at the 20 codes from the end of the axial coding stage and noticed some of them could be grouped together to create themes within the data. Within the 20 codes, four themes were recognized when referring to student career readiness: (a) curriculum, (b) instruction, (c) course and career guidance, and (d) necessary employability skills, as shown in Table 1.

Table 1

Description of Emergent Themes from the Analysis

Themes	Formulated Meaning	Examples of Significant Statements
Curriculum	Adequate curriculum in both the core content areas and CTE areas need to be present for students to be considered career ready.	"But the four by four is solid. I think it's good. And then, like I said, supplement with your endorsement pathway electives. And I think you can be career ready."
Instruction	For students to have postsecondary success, appropriate instruction including career exploration and differentiation needs to occur within the classroom. Furthermore, adequate resources and support is needed to supplement this instruction.	"I wish we could introduce it in the 8th grade by having maybe like two or three teachers on campus and having this teacher more like kind of like a career exploration type of class where the teacher could say, you know, if you take Miss Adams, you'll learn about engineering, whatever, whatever. If you take Miss Smith, she's gonna teach you a little bit about culinary and do hands on."

Course and Career Guidance	Students need direction, specifically from high school counselors, when selecting courses to prepare them for postsecondary success.	"I think our counselors need to do a better job with making a plan for these kids, because if you're if, you know, I can understand maybe your first year, but after your second year, you should know, what [your students are] capable of and what [they're] not. . . . Where do we drop the ball? Cause this kid could have been a certified auto mechanic his senior year instead of his mom now spending 10 grand to get a certification for her kid? Because that's how much it's gonna cost. So where do we drop that ball?"
Necessary Employability Skills	Certain skills, including soft skills and specific industry skills, are needed for students to be successful in a career following high school.	"They speak the language. We offer them an entire well, we require them to take an entire year of medical terminology because, you know, with especially in your stuff with special ed and ESL oh, my gosh, the acronyms and the terminology. You can't survive if you don't speak the language. Yeah. So if you've ever heard doctors talking to each other or trying to talk to patients, if they aren't very compassionate about watering down their language a little bit, it's it's a whole different language. We teach them how to speak that and to communicate professionally. So they. That's part of career readiness."

To bring meaning and substance to these themes I used two focusing strategies by Saldana (2016): the top 10 and the study's trinity. These strategies were discussed in depth in Chapter III. I started by choosing 10 essential quotes from the data. I arranged these quotes in multiple ways: by hierarchy, importance, and narrative. Furthermore, I utilized the study's trinity by Saldana (2016). I took the three most important issues recognized through the data analysis (i.e., course and career guidance, necessary

employability skills, and curriculum and instruction) and organized them into a triangle with the most important issue being at the apex. For this study, one issue did not seem to outweigh another. Instead, all worked together to prepare a student for postsecondary readiness.

Themes. Once main themes were identified (as shown in Table 1), sub-themes began to emerge. Having a structured and specific curriculum was important to student career readiness and could be broken into two separate parts: core curriculum and CTE curriculum. Three aspects of instruction were important to instructors when focusing on career readiness: (a) instructional resources and supports, (b) career exploration, and (c) differentiation. Two types of skills were noted when assessing a student's employability level: soft skills and specific career skills/knowledge.

Curriculum. As I analyzed my data across all five cases, it became apparent that adequate curriculum played a crucial role in preparing students for postsecondary success. The teachers spoke proudly of their CTE curriculum and believed that the TEKS established for their courses were rigorous. They also had strong opinions regarding core curriculum, and although they felt curriculum in the core classes was necessary, opinions on what students should be required to take in core classes varied. See Table 2 for a summary of the subthemes for the theme of curriculum.

Table 2

Description of Emergent Subthemes from the Theme of Curriculum

Subthemes	Formulated Meaning	Examples of Significant Statements
Core Curriculum	In Texas, the four years of curriculum students are required to take in the areas of math, science, social studies, and science	"Well, not to bash my core teachers. Well, I don't think 4 years of English is necessary. I don't think 4 years of social studies is necessary."
CTE Curriculum	The curriculum students are required to take within their endorsement pathway	"Like when you're in my Law I class, you're going to know your basic foundation of law enforcement, of a court, of correctional, like how everything works. And then in Law II, you start studying more of a specialty."

Core curriculum. When analyzing the data, there was no doubt that teachers believed some form of core classes were necessary for students to take during their high school career to prepare them for life following high school. For instance, during his interview, Derrick, the welding teacher, stated, "As far as reading and writing and history and all that, I think [they] are all important [and] are needed. You can't get away without it." Furthermore, Izzie, the health science teacher, emphasized this point during her interview by saying that the core curriculum "is solid." She explained

> to be an effective health care professional you need to be engaged in your world and know how government works. . . so you've got to have the government, the history, all of that. You've got to have excellent written and spoken communication skills. So your English does that. Obviously, calculating drugs

> and therapies and all that is so so much math. And of course, everything science, so I don't see anything that isn't super, super important to what we do.

When referring to the core curriculum, Christina mentioned, "nothing is going to hurt you. You're learning."

Although the common sentiment among all five cases was that core classes are needed for students to be successful in a job following high school, there was a common agreement in the fact that students should not have to take certain courses, specifically courses taken during students' junior and senior years of high school. When asked about core classes and her opinion on any courses students were required to take that did not contribute to success in the animal science field of study, Meredith quickly responded,

> Well, not to bash my core teachers. Well, I don't think four years of English is necessary. I don't think four years of social studies is necessary. I really love that we're adding like more CTE science or application-based classes or theory classes or research based classes that count for their credit. But like English IV. I don't even know what the other core classes are. Like some of these math classes are just like totally [not necessary]. I don't think they're necessary. Yes, kids need to learn how to study. They need to learn how to learn. And I think a couple of years of that maybe at a higher rigor is what they need instead of like building them up to take AP classes their junior and senior year. Like let's just start their first two years at a high level. And then let's apply all that knowledge and stuff that they learned as juniors and seniors and stop with the like mandatory English IV. Like who wants to read Shakespeare? Is that really relevant in 2020? No, it

> is not because I learned all that crap, and for what? I've never used that. I've never used Geometry. I've never used my English stuff.

Miranda, the Culinary Arts teacher, further emphasized this point by stating, "I think that in their senior year, we're done. I think all of that is redundant. All of the English, all the other stuff they're doing is all redundant." Derrick seemed to have the same opinion, but his was more regarding the math classes students are required to take. He stated that "common core is needed for sure. I mean, there's a lot of maths out there, in my opinion, that unless you're going to go into a particular field of study, they don't really do you a lot of good."

Furthermore, teachers believed more real-world application needed to be integrated into the core curriculum. Derrick emphasized this point by stating,

> More real world stuff. You know. How to balance a checkbook and stuff like that. I think it would help out a lot more. They don't teach kids how to manage money and the account of dollars and all that sort of stuff. Whereas, I think that would go a lot further than learning about a math if you weren't going to be a petroleum engineer, it really serves no purpose.

When referring to courses to integrate for students during their senior year, Meredith emphasized the idea of incorporating real-world application and employability skills into the core classes:

> I would rather see them taking some sort of applied English or like something that's going to apply to a career. Like resume writing or how to talk to people. How to be social. Like these are the things that our kids don't know how to do and they're losing it because they're on like they're just texting all day long.

> They don't know how to talk to real people you know? So I would like to see like something like that, like English evolve into that their senior year or social studies evolve into that. Like where should I be looking for employment? Where geographically can I go look for a career? Where can I build a life? Like that kind of stuff is what they need to know or else they're going to be stuck in their hometown for the rest of their lives. And I feel like we could be doing such a better job of creating worldly kids than what we are currently doing.

Miranda further emphasized the need to integrate real-world application into the core classes but mentioned a possible barrier being standardized testing. She stated, "If we weren't focusing so much on our numbers for testing, maybe we would be able to [integrate real-world application into the core classes]."

CTE curriculum. Upon analysis of the five cases, teachers were consistent in regard to their opinion regarding the state TEKS required for their CTE courses. They all discussed that the TEKS for their content areas were well written and applicable to their field of study. When referring to the TEKS in the area of welding, Derrick stated, "They're pretty good in the sense that they ask for a lot of real world experience." In the area of Health Science, Izzie mentioned that the TEKS are "modular expandable enough to where the teachers can hit the minimums but enrich the curriculum. I think they're solid." Furthermore, Miranda stated that the TEKS for culinary arts give students a "foundation of restaurant management, hotel restaurant management, and restaurant management in culinary arts."

Furthermore, several of the teachers expanded that the TEKS were written by stakeholders within their fields. For instance, the law enforcement TEKS were written by

law enforcement instructors, the animal science TEKS were written by animal science teachers, and the Health Science TEKS were written by stakeholders in the health science industry. Christina, the law enforcement teacher, even emphasized that she met regularly with the county sheriff to stay up-to-date on local law enforcement training so she can train her students. She stated, "That way out of high school, it's [the county's] product," so it is easier for them to get a job in local law enforcement. Subsequently, Christina discussed that each course within her endorsement pathway teaches the students something different:

> Like when you're in my Law I class, you're going to know your basic foundation of law enforcement, of a court of correctional, like how everything works. And then in Law II, you start studying more of a specialty. Like if kids want to do profiling or if kids want to be a police officer or if a kid wants to work in anti-terrorism. It's really interesting because they say oh, I didn't know that was actually a career.

When discussing curriculum in their area of CTE, teachers also reflected on the certifications offered once students finish their endorsements. These certifications present opportunities for students to pursue jobs when they graduate high school. Meredith explained that students who complete an endorsement in Animal Science will get a certification as a vet assistant at a Level I from the Texas Veterinary Medical Association, which is "one of the entities under the American Veterinary Medical Association." This certification is the lowest offered through the Texas Veterinary Association, but according to Meredith, it will "get them job entrance way easier." She explained that the certification means the following:

> It just shows that they've got 200 in class hours, 300 veterinarian supervised hours. They go through like four pages of checklists of skills that they have to complete. A veterinarian will see that on their application, and they know that they can put them in a position. They don't have to micromanage, they don't have to do a ton of job training. They're ready to go. They're ready to go out into the workforce.

Two certifications are offered through the law enforcement endorsement pathway: 9-1-1 National Certification and the Basic Jailor Certification. Christina explained that the following jobs are available when students receive certification through her program:

> They could go into 9-1-1. They could be a basic jailer. They could go into the court room being a court clerk. They could go into the attorney's office and be a law clerk for them. So the umbrella is huge. They can even go into probation.

If students complete the culinary arts endorsement, they receive a certification in Surf Safe Management. Miranda discussed that this certification "is safety, sanitation management. That's the certificate that you see inside the door [at a restaurant]. Every restaurant has to have a manager, a certified manager."

According to Izzie, many certification opportunities are available through the Health Science endorsement: CPR, automated external defibrillator, blood borne pathogens, EKG, phlebotomy, medical assistants, and nurse assistants. She explained that these certifications open up many job opportunities when students graduate from high school including "be[ing] a technician and read[ing] heart rhythms and stuff in the hospital, which pays about $17 an hour at entry level." In the Welding endorsement, students have the opportunity to earn a certification in AWS welding. Derrick explained

that students “do a weld test [in class] just as if they were going to do a weld test for a weld certification at a university or what not.”

Although the certifications open up a wealth of opportunities for students, Derrick mentioned specific barriers to the welding TEKS and certification attainment in his area. He mentioned,

> I would like to have TEKS that don’t move so fast in welding because it’s like learning a whole new language, yet having to write it all at the same time. You may only have a few things that you would really look into accomplishing in order for students to master the welding position. It would be better if the TEKS were like hey, you need to learn these four welding positions within the year.

Furthermore, Derrick discussed the fact that certification testing is very expensive, so the district only trains them to certify for one position, and students need to know more than one welding position to acquire a job in the welding industry. Other teachers mentioned barriers as well, but these were regarding their practicum associated with their course curriculum.

Meredith and Izzie both mentioned barriers with employers limiting what their students are allowed to do while on the job site for their practicum. Meredith stated:

> Now, what they do specifically at that vet clinic depends on what the clinic will allow them to do. Some clinics will only let them stand around and watch, so the kids have to go elsewhere to get more hands-on and stuff. But according to the checklist, everything can be explained, and they don’t have to actually perform things for their skill. But that’s why the dogs in the classroom are so important.

> If I didn’t have that. I’ve got like some clinics around here that kids would never get to do anything if I didn’t have the dogs in the classroom.

Izzie elaborated on barriers for students in her practicum by saying the following:

> Originally, when we were going into the hospitals, the risk managers didn't see a whole lot of benefit for having secondary students in the hospital and that all we really were was a liability. And so we've gradually been able to ensure the hospitals, them seeing us there now four years in a row that they come there prepared, that they're taught in infection control, they're not contaminating anything. And even, you know, when we're away at the summer, when we come back in September and they're new kids and stuff, it takes a while before they start letting us do more.

Overall, teachers seemed to be happy with the curriculum within their area and really emphasized the practice and experience that students received both in the classroom and in their practicum courses. Meredith elaborated on the hands-on experience her students received in the classroom:

> They take care of the doggy daycare solely. I teach them office skills, and they have to schedule appointments. They have to handle all the paperwork. They have to review vaccination paperwork and approve dogs to come in. They have to keep track of those records and set reminders to go back and remind people, hey, your dog can’t come next month unless they get updated on their vaccines. They learn how to go manage clients using technology. They get to talk to clients. They have to formulate e-mails so some of those soft skills that we’re

learning. They handle the dogs in the clinic and the paperwork. The cage carts. They clean. They walk the dog. They observe animal behaviors.

Instruction. As I was analyzing the data in the third phase (i.e., selective coding) of the constant comparison analysis, I began to notice a theme of instruction across the five cases. Regarding instruction within all content areas, the teachers believed that more real-world, hands-on career exploration needed to be implemented. Furthermore, the teachers emphasized the need for better resources and supports within their areas to better supplement their instruction. Finally, they insinuated that instruction needed to be differentiated in the classroom and also course selection should be differentiated to better meet the needs of individual students. Because of these findings regarding instruction, three sub-themes began to emerge: career exploration, classroom resources and supports, and differentiation. The teachers were clear on the fact that these three areas were vital in order for them to have adequate instruction within their classroom to prepare students for postsecondary success. See Table 3 for a summary of the subthemes for the theme of instruction.

Table 3

Description of Emergent Subthemes from the Theme of Instruction

Sub-Themes	Formulated Meaning	Examples of Significant Statements
Career Exploration	Instruction should include hands-on, real world experiences for students to explore their vocational identity.	"Don't just do theory-based, give them hands and take them to a field trip. Make them see what the biologist or the chemist [does], so once they're exposed they have a better [idea of what the career does]."
Classroom Resources & Supports	Adequate resources and supports are needed for classroom teachers to provide satisfactory instruction to students.	"There's a whole lot more hands-on simulation opportunities [available]. So that kind of thing would be better if we wanted to raise the bar."
Differentiation	Diversity in course selection and teacher pedagogy is essential to ensure students receive an individualized educational plan tailored to meet their needs in instruction.	"I think every kid is different, and I think what works for Adam is not going to work for John."

Career exploration. It became evident through my data analysis that the teachers believed career exploration to be a vital part in preparing students for when they graduate from high school. Derrick specifically discussed the importance of career exploration to avoid debt at the postsecondary level:

> They're trying to find themselves, and if they found themselves in high school when it's cheap, then they would waste a lot less money. You know, 70% of our graduating class is going to attempt college. Twenty percent of that 70 is going to graduate from college.

Christina's opinion was that career exploration needed to start earlier than high school:

> We do that eighth grade fair, but that's not enough. The kids, they're not exploring. I feel like at the eighth grade, they're excited. They can't wait to come to high school. Bring in guest speakers, and take them on field trips.

Christina further elaborated on the importance of hands-on career exploration in instruction by saying,

> Don't just do theory based, given them hands on and take them to a field trip. Make them see what the biologist or the chemist [does], so once they're exposed they have a better [idea of what that career does]. [Students] need to know what engineering is all about or auto mechanics or even law.

Derrick discussed the experiences that students received in his classroom to prepare for and explore the welding industry:

> Basically, I mirror a lot of weld like your trade school. Like, we go real heavily intense on safety in the very beginning. That's about a quarter of the semester. And then after that, we're going to move out into the shop, and we're going to develop skills, and we're going to just put a lot of time and expenses into that student to develop the skill.

Izzie, the health science teacher, expanded further on the importance of career exploration, but she emphasized this being a part of core content instruction as well and not just CTE instruction. She specifically spoke about math by saying,

> If a math teacher who's teaching Trig could take the kids to a construction site where they could understand why the angle has to be 90 degrees or why this is the strongest point or if they could actually put the theory into practice, they would engage so much more.

Izzie expanded on the importance of engagement and exploration in classroom instruction by emphasizing "changing the theory into action." She stated,

> You know, if they see it on the PowerPoint and it's death by PowerPoint, then you're going to retain 40%. And if they see it and do it like CPR, they retain 80%, but if they see it, do it, and then teach the next student, then they retain upwards of 90%.

Classroom resources and supports. As I interviewed the five teachers, the importance of adequate classroom resources and supports was an evident piece in effective classroom instruction to prepare students for the workforce. The teachers discussed the importance of having available resources for students to replicate the industry within their classroom. For instance, the animal science teacher Meredith mentioned the importance of having animals in the classroom for the students to interact and learn with. The culinary arts teacher Miranda discussed the importance of having updated culinary appliances like stoves, sinks, and knives for students to use in the kitchen. All of the teachers made it clear that the students in their CTE programs need to learn by doing, and students need to put the theory into practice in order to be ready to enter the workforce in their specific industry.

The teachers discussed multiple barriers to getting adequate resources to help students have real-world, interactive experiences in their classrooms. The number one barrier was funding. Derrick spoke specifically about the cost of materials for welding:

> Most everything we do is expensive. It's expensive because everything that we utilize is expendables. For the most part, we're only going to be able to weld on a piece of metal so many times before we got to chunk that away. It's just gone as

> far as it can go. The past couple of years have been kind of rough as far as tariffs are concerned. We had a lot of tariffs on steel and that hurt the last couple of years. We go through a lot of consumables in the way of argon and carbon dioxide. Sometimes, we go through helium and oxygen, acetylene, propylene. You know, those are all consumable gases that as you're welding it comes and goes, and it's gone. Welding rods have gotten more expensive. We go through 50-pound bags. One bag is about $160 to $200 depending on where you buy it and when you buy it. Steel is the stock market, and you have to call on a daily basis because it'll go up a few cents or down a few cents daily.

Izzie, the Health Science teacher, further elaborated on the issue of budget for her program. She stated, "Anything that says medical, it automatically triples the cost. My budget for four separate courses is $6,500, so I don't have a lot of financial resources. I buy a lot of stuff myself because I need it for the quality of education."

Furthermore, teachers discussed the lack of curriculum resources available to supplement the TEKS. In reference to this concern, Meredith said, "Yes, we have TEKS, but as far as books and stuff like that, there's not really anything out there. We have to piece and put stuff together." Miranda discussed having a book but not using it in culinary arts. She stated, "I don't really use the textbooks that much except for my own reference."

In addition to inadequate resources in the classroom, teachers dialogued about inadequate teacher professional development. Christina, the law enforcement teacher stated:

> Training. Oh, my God. I fight with Sloan ISD every single year. I do book work when I want them to do some vocab [to introduce] a unit. But that's it. That's it. Everything else is from me. If I'm lecturing something, it's coming from me, from my knowledge. When we go to training, [we learn about] forensic science, updated juvenile law, updated municipal law, federal law.

Christina further discussed that they go to district-wide professional development, but all CTE teachers are included in these professional development sessions. She stated, "It's for everyone, it's not for me. It's not about law. It's not about how do I solve a crime scene? How do I do a building search? [It's not about] stuff that we can bring back to the classroom."

In addition to lack of funding, inadequate resources to supplement their curriculum, and insufficient training, teachers mentioned that many of the tools they are given are outdated. Izzie expressed this by saying,

> I think we're in about 2010 compared to the other Health Science educators that we deal with. Almost everybody has some kind of a career center or some place that they go to specialize. They have it set up in mockups of whether that's an auto shop or a beauty shop or an emergency department or whatever. There's a whole lot more hands-on simulation opportunities. So that kind of thing would be better if we wanted to raise the bar.

Christina also elaborated on this issue by saying, "Our tools need to be updated, like our 9-1-1 is so old."

Differentiation. The importance of student needs in both instruction and course selection molded into a sub-theme of differentiation under the theme of instruction.

When discussing her animal science classes throughout the years, Meredith elaborated on the importance of differentiation in the classroom and addressing different student needs by saying the following:

> [Instruction] really depends on the class I get each year. Some classes I get I'll have 95% certified. Last year was like 50% certified, but I know that going in. I test them all anyway and like in the past, you know, I have kids that go in and they just work at vet clinics and they'll do the kennel tech and they love it. And I have some kids in vet school right now. So it really just depends.

Meredith elaborated further on the need for differentiation in course selection for students: "Some of the things they don't really need to be taking like astronomy. Yeah, they might be right for some kids. They're not right for my kids."

Christina also mentioned the importance of differentiating course selection and requirements for students:

> It's hard because you have kids that can't do the format. The English, Science. I think every kid is different, and I think what works for Adam is not going to work for John. Well, some kids may want to do the, you know, the four maths and the history. That's awesome. Because in their mind, they're going to go to college. But you have a lot of kids who can't do it. I mean, I hate to say it, but we're not doing what's best for kids.

Although Christina shared the sentiments of differentiation of class schedules and course selection, she did not seem to agree that course instruction and content should be differentiated. Christina believed that modifying work for students could hurt them in their postsecondary endeavors:

> I think a lot of kids are hurt because of all the modifications that we give them. We give them a safety net, and then that doesn't work in the real world. If you want a certification, a plumber, a nail person, electrician, you have to pass a certification test. No one's going to give it to them. Real life doesn't work like that. I think we hurt our kids by giving it to them.

Course and career guidance. Through analyzing the data across the five cases, I noticed the theme of course and career guidance to be an important element of preparing students to be career ready. As I coded the data and began grouping important codes together, there seemed to be a lack of counseling for the students regarding career readiness and course selection. Furthermore, student support was lacking in planning for their high school classes. According to the teachers I interviewed, students were not educated adequately on endorsement planning, and students had little understanding of the content offered in specific courses. See Table 4 for a description of course and career guidance.

Table 4

Description of Emergent Subthemes from the Theme of Course and Career Guidance

Sub-Themes	Formulated Meaning	Examples of Significant Statements
Counselor Support	Students need guidance from their counselors in planning and choosing an endorsement for their high school career to help them prepare for postsecondary success.	"I think our counselors need to do a better job with making a plan for these kids."

Throughout all five interviews, it became evident that students needed more counselor support when it came to planning for high school course selection and postsecondary success. Christina emphasized this point by saying,

> I think our counselors need to do a better job with making a plan for these kids. I can understand maybe your first year, but after your second year, you should know [what your students] are capable of and what [they're] not…. I've been in ARDs where the kids tell me [they want] to go into HVAC, and I'll look, and he's a junior. I'll say how come he's not in that program? And the kid is shocked that there's a program for that… I've met kids who want to do mechanics, and they're juniors. And I'm like why are you in culinary? Why are you in business? We have automotive, and no one told you? Where do we drop the ball? Cause this kid could have been a certified auto mechanic his senior year instead of his mom now spending 10K to get a certification for her kid. So where do we drop that ball?

Specifically, high school counselors were mentioned throughout the interviews regarding helping educate students on endorsement pathways and CTE courses. It was made very clear that counselors in the high school setting spend more time focusing on core class selection than on elective and endorsement selection.

Miranda emphasized this concern by stating,

> They're overwhelmed. The counselors aren't even counseling. I think the counselors are just handling numbers. And, you know, they're doing their [jobs]. They're coming up with doing the number thing as opposed to just trying to [help kids]. I don't think they even get to counsel, do they? Do they get to sit down

> and spend time and say, what are you interested in? No. Nobody does. Do the counselors in the junior high have time for that? Why are they even called counselors?

This lack of guidance often led to students being in the wrong endorsement pathway, so they were not able to complete an endorsement or receive a certification. Miranda further emphasized this point by stating,

> I want the kids to be able to pick something that they really, really want. A lot of kids I know are just thrown into [an endorsement]. We've got seniors starting in our intro class, which is a waste of space for me.

Christina discussed specific concerns with counselor support because she has students in her endorsement pathway who are unable to get into required courses because courses become full of students who are not even in her endorsement because the counselors are trying to get them into a fourth science. When referring to Forensic Science, she stated,

> It's part of my umbrella. It's part of the law enforcement endorsement. My kids in my program will not get into forensic science because it's full. I've gone to the counselors, and said that's B.S. If you have all these kids who are under my umbrella, they should be the first ones in because they've done their time with me. Put them in, put them in. Then, you have all these juniors, seniors who want an easy way out [for their fourth science]. These kids deserve to be in that [course].

Christina said she is constantly telling the students to talk to their counselors, but she feels "the counselors don't understand."

Derrick also agreed that the counselors do not understand the importance of educating students on endorsement pathway choices and course selection. However, he feels that the lack of support from counselors is not their fault and that professional development needs to be offered to counselors in regards to CTE course selection and endorsement choice. He emphasized this point by explaining,

> There probably needs to be some form of [professional development]. I mean, they go to Capturing Kids Hearts, Fred Jones, and all that sort of stuff just to learn how to do things with kiddos. But they need some classes or some sort of counseling like a convention or something like that to where they could go learn about industry, and they could talk education [with kids]. They don't have a clue on it not because they're dumb. They're just ignorant. They've never seen it before. They don't know what to talk about.

It became apparent that there was a lack of support in helping students plan for their futures and in their course selection for high school. Several teachers mentioned starting career exploration and education earlier, so that students are prepared to adequately build their schedules when they enter the high school setting. Miranda said, "Can we do some sort of questionnaire or a pre-interview before they even come into our course? There are questionnaires so that we could know which course to send them into." She further elaborated on educating students on the career endorsements and pathways by saying, "We have our thing [at the junior high], but I know it's not enough time. [Could we start] maybe even in the sixth grade? Let them start thinking about and pay attention to what [they] really enjoy doing."

Necessary employability skills. The fourth theme identified during the selective coding phase of my analysis was necessary employability skills. As I grouped quotes and codes together in this theme, two specific types of skills began to emerge: soft skills and career skills/knowledge. Necessary soft skills for employment were consistent across all five interviews, but career skills and knowledge were often specific to the industry that accompanied the teacher's endorsement course stream. See Table 5 for a description of the subthemes that emerged from the theme of necessary employability skills.

Table 5

Description of Emergent Subthemes from the Theme of Necessary Employability Skills

Subthemes	Formulated Meaning	Examples of Significant Statements
Soft Skills	Attributes students need to effectively interact with and work with others; these skills enable people to navigate their work environment effectively.	"They have to communicate with their peers that are with them at the clinic and having them communicate about their schedules is a big deal, especially when you have kids that are involved in athletics and sports and they have other jobs, other responsibilities."
Career Skills/Knowledge	The knowledge and skills, specific to a certain industry students need to be successful in a career.	"They speak the language. We require them to take an entire year of medical terminology because, you know, you can't survive if you don't speak the language."

Soft skills. When discussing employability skills needed in a career, the teachers mentioned important soft skills throughout the entire interview process. These skills included professional problem solving, professional ethics, effective communication with all stakeholders in the industry, having an understanding of cultural diversity, self-

advocacy, effective time management, and having good customer service. When discussing the need for these soft skills in the industry, the teachers were very clear on the point that these soft skills were necessary, but the education system often fails them on learning these skills because the focus seems to be on high-stakes testing and graduation requirements.

When discussing professional problem solving, Christina said,

> I always yell at the kids, find a solution. You know, they call your name, and I'm like find a solution. After you've checked that checklist then come to me because a supervisor is going to say, OK, you have a problem. What are you going to do, or what do you want me to do? Don't just come to me and say X, Y, and Z. What do you want me to do? I think they need to learn to be problem solvers not just at school but in the workplace.

Izzie emphasized the importance of problem solving in the field of Health Science by saying:

> Competency in problem solving [is important]. The decision tree, I guess you'd say. From the time you set eyes on a person, you start doing an assessment. So, we train them in that for four years, and they are super good assessors and problem solvers. By the time they're in that, especially in that advanced practicum class, I can give them a four sentence scenario, and they can diagnose. They can assess, diagnose, set up a treatment plan, and what they're going to do for follow up in just a really short [time]. That's where we want them to be when they go to the next level.

Although professional problem solving seemed to be important in any field of study, Derrick specifically discussed students struggling with this skill:

> They struggle with finding answers to physical problems on their own. Not so much maybe you can put a mathematical equation in front of them because they could probably figure a lot of that out but using a lot of your common sense. They don't have a lot to refer to because they haven't had a lot of hands on. It's not that they're incapable. It's that they haven't been around that.

Professional ethics also seemed to be an important soft skill when speaking with the teachers. When commenting on promptness, Christina said,

> I tell them all the time professional ethics. Oh, my God. I cannot stress that enough with my kids. Because you have a boss and your boss says, "hey, Christina, I need you to be here at 8:00." You don't say for what? Right? You're like, sure. I'll be there. I'll be there at 7:45.

Furthermore, Izzie expanded on this skill by saying, "We hound them on job seeking skills, and what's in it for me from the employer side and promptness, dependability, working with teams." Derrick commented that professional ethics are often an issue for students right out of high school for the welding industry. He stated,

> I could see them being more of an issue because [employers] don't have time to have a conversation of why you can't wear flip-flops on the job. [They would rather hire someone] that already knows that stuff and that you're just not allowed to do certain things on the job sites.

Time management and self-advocacy were both skills mentioned as important employability skills throughout my interviews. Izzie mentioned being concerned

regarding students' time management skills; she stated, "[They have] no sense of time or time management." She also mentioned the importance of managing time while on the job: "Your patient will keep you there until you're half an hour behind on your schedule. You've got to find a way to explain, be kind, but be efficient. That is really a hard skill to learn." Meredith mentioned self-advocacy when referring to communicating with veterinarians and stakeholders about their education:

> The vet, they're not going to offer a lot of information unless you ask for it. You know, you have to advocate for yourself and what you want to learn and then, you know, they'll open up to you and share it with you, but you have to be the one to initiate most of it.

She further emphasized the importance of self-advocacy by saying, "If they don't advocate for themselves and they don't ask me questions, [they're not going to make it]." Meredith continued by commenting, "If they have a hard time even calling veterinarians and asking about openings, like if we're struggling with that well, that's the biggest issue right there because they really do have to have initiative to go out there and find a job."

The biggest skill that teachers discussed students needing to master to be an effective employee was communication with all stakeholders. Miranda saw deficits in her students when it came to social and communication skills, and she emphasized these skills needing to be taught within the CTE classrooms. Izzie discussed the aspects of communication that are taught within her courses, "We talk about body language. They have to learn how to talk to clients once they get the job." Meredith also mentioned the importance of effective communication in the Animal Science field by saying,

> They have to communicate with their peers that are with them at the clinic and having them communicate about their schedules is a big deal, especially when you have kids that are involved in athletics and sports and they have other jobs, other responsibilities.

Christina emphasized the listening aspect of communication in Law Enforcement:

> When I do 9-1-1 and we do scenarios, they have to listen. I have scenarios and they have to listen to them and then I'll stop and I say, "What was the address? Why is she calling? What was the suspect like? How did she describe him? Someone's in the house, what did she hear, or you're on the phone and you hear a noise, your second question is what was that? What's your plan? Are you going to use it? Is it loaded? Is there somebody in there who's with you? You know, stuff like that. That's really important. Those listening skills.

Understanding different people and being cognizant of cultural diversity was another soft skill teachers considered to be important. Miranda, the culinary arts teacher, commented on the importance of this skill by saying, "You've got to be able to just communicate with [different] people by being current on cultural events." Izzie discussed how important this diversity is in health care by stating,

> We just finished diversity in health care during February and talked about Black History Month. We also talked about the Holocaust. You know, [things] can really go wrong when people lose their way and medicine didn't save those people. We're supposed to be the standard bearers for that.

Customer service seemed to be an important soft skill for students to be successful in the workforce as well. Izzie elaborated on this by saying, "We talk a huge

amount about customer service and just not that the customer is always right, but that they need to have your attention until they understand and understanding medicine is very often not easy to do." Izzie discussed customer service further and emphasized that students often lacked compassion and empathy when dealing with others:

> I am pulling my hair out about empathy because I just don't know where it is or where it goes. I don't know where they have the disconnect. I don't know if it's that their parents don't show them love and compassion or if it's bullying, if it's the video games or whatever, but they just don't seem to have the empathy, and I have not been able to accomplish that. But as far as, you know, the competence, they're competent. They're just not kind. I don't know.

Career skills/knowledge. When discussing career readiness with the teachers, there was knowledge and skills specific to the field that students needed to know to be successful employees. Izzie and Christina both discussed the importance of knowing the "lingo" in their fields of study. Izzie explained this by saying,

> They speak the language. We require them to take an entire year of medical terminology because, you know, you can't survive if you don't speak the language. So if you've ever heard doctors talking to each other or trying to talk to patients, if they aren't very compassionate about watering down their language a little bit, it's a whole different language.

Christina discussed the following regarding adequate vocabulary in the field of law enforcement:

> I think for them to have a foot in the door. Like to kind of set you aside from everybody else is that you're knowledgeable. You have the skill. You

> understand the lingo. They'll have to train you obviously to their policies and procedures, but you come in already knowing the code, the ethics, the policies.

Meredith, the animal science teacher, and Christina, the law enforcement teacher, both emphasized the importance of academic knowledge to postsecondary success. Meredith stated, "Well, you know, academics first hand. If they don't know the material, if they can't hack it with the academics, then I have to let them go." Christina discussed the need for reading and writing and how you cannot get a job without these skills because "in law enforcement, you do a lot of reading and writing."

Miranda discussed specific skills related to culinary that were important. She stated that if students end with their certification, they have the skills to "run a restaurant." She emphasized that they work hard in class to build catering skills, and students should be able to do the following: (a) prepare a meal for a large amount of people, (b) create a menu, (c) price a menu, (d) determine appropriate portion size, (e) adequately clean a kitchen, (f) run a kitchen, and (g) properly stack a refrigerator. Meredith also discussed specific skills and knowledge students would need to receive a job in the area of animal science. She stated the following:

> They know how to observe animal behaviors and observe like, you know, the urination and feces and all that and having to record all that information. Those are some things that we really work on that will translate over into [a job].

Although Derrick commented on specific skills students needed to attain a career in welding following high school, he specifically talked about his students not being ready to enter a job directly following high school:

> I don't think the kids can go there. I mean I have like a select few kids that could go into it, and I would feel comfortable with them walking right onto a job site. But for the most part, they're going to need another piece of paper. They're going to need more hours in a booth, welding different positions and stuff like that. They just have to. They don't have the time in the booth to be able to perform on demand consistently enough to meet the standards that the industry demands.

He further discussed the time it takes to become proficient at the skill of welding and the fact they do not have that kind of time during the school day:

> Roughly every position that you get certified in takes about 150 to 200 hours to become proficient in that one position. So you have to put in a lot of time. It takes a long time for the kiddos to get that proficient.

He elaborated that students are only certified in one position upon completion of the welding endorsement, which will help them get out of a class in trade school, but it will not get them right onto a job site following high school graduation.

Summary

In Chapter IV, I provided a description of the findings that emerged from the five case studies that were analyzed using constant comparison analysis. The data were synthesized across the five cases, and four themes emerged from these findings: (a) curriculum, (b) instruction, (c) course and career guidance, and (d) necessary employability skills. From each theme, subthemes emerged as well. The theme of curriculum divided into core curriculum and CTE curriculum. The theme of instruction had three sub-themes: (a) career exploration, (b) resources and support, and (c) differentiation. Finally, the theme of necessary employability skills had the subthemes of

soft skills and career skills/knowledge. Chapter V will provide a discussion of the findings and recommendations for practice and future research.

CHAPTER V

Summary, Implications, and Recommendations

The purpose of this research study was to explore the perceptions of CTE high school teachers regarding student career readiness following certification attainment in a specified CTE course (i.e., animal science, welding, health science, culinary arts, and law enforcement). In this study, teachers described their opinions on career readiness for students and provided valuable feedback for recommendations on better prepping students for postsecondary success. The results of this study emerged into four themes that influenced career readiness for high school students: (a) curriculum, (b) instruction, (c) course and career guidance, and (d) necessary employability skills. These five teachers demonstrated that multiple factors can influence a student's level of postsecondary success.

My study was guided by the following research question: How do selected CTE teachers perceive students' career readiness in their CTE pathway? The study was grounded in the Whole Child Model, which focuses on the long-term development of all children (Association for Supervision and Curriculum Development, 2019). To add meaning to the findings, I utilized the review of literature specific to CTE and career readiness. This final chapter will consist of the following aspects: (a) discussion of findings as related to the research question, (b) discussion of findings in context of the conceptual framework, (c) discussion of findings and the review of literature, (d) implications for practice, (e) recommendations for future research, and (f) summary.

Discussion of Findings as Related to the Research Question

In this section, findings will be summarized according to the research question that guided this study. The research question for this study explored selected CTE teachers' perceptions of students' career readiness in their CTE pathway. Five case studies allowed me to examine the phenomenon of career readiness in context of the central research question. The findings for my study indicated that according to teacher perceptions, there was a connection between student career readiness in the pathways and the four themes that immerged from the data (i.e., curriculum, instruction, course and career guidance, necessary employability skills).

Evidence suggested that adequate curriculum must be in place in both core content classes and CTE classes for students to be prepared for postsecondary success. Furthermore, teachers discussed the importance of efficient resources and support to supplement instruction within the classroom and also the need for career exploration within instruction. Also, evidence suggested the need for differentiation of instruction for students to prepare for life following high school. Within the cases analyzed, evidence suggested that course and career guidance was a large part of preparing students for the workforce, and the teachers suggested better counselor support with planning throughout students' high school career and discussing students' interests and passions. Finally, specific skills became evident through the data analysis. The skills could be separated into soft skills and skills/knowledge specific to the industry being studied.

Teacher perception of career readiness varied across the CTE content areas, and evidence suggested that they perceived students to be career ready in certain areas but not in others. For instance, the TEKS in the CTE content areas were perceived to be strong

overall, but the teachers had opinions on how core curriculum could be adjusted to better meet the needs of students for postsecondary success. The teachers believed that core content is a necessary element, but they did not believe that all students should take the same core classes, especially during Grade 11 and Grade 12. Furthermore, teachers suggested to better equip students for the workforce, core content area teachers need to integrate more real-world experiences into their curriculum. In the area of instruction, evidence suggested that resources and supports to supplement instruction played an integral role in preparing students for the workforce. For instance, having available resources to replicate the industry was important, but teachers in this study mentioned multiple barriers to resources within the classroom like inadequate budgets and professional development. Also, teachers often discussed the importance of integrating career exploration into instruction by integrating hands-on, engaging lessons so students can identify their interests early on and enter their career field confidently. Differentiation of instruction was also an important component of career readiness according to the cross-case analysis, and evidence suggested that students are not getting the differentiation in course selection that they need to be postsecondary ready.

Course and career guidance seemed to be a large part lacking in helping prepare high school students for the workforce. The teachers expressed that students are not adequately educated on the CTE endorsements and courses offered, so students often struggle choosing their electives and do not discover their passions. Furthermore, during course selection, the perception was that counselors focused more on core course scheduling than CTE and elective course scheduling, which could have a detrimental effect on endorsement completion and career readiness. Finally, evidence suggested that

certain employability skills were necessary in order for students to be career ready (i.e., soft skills, specific career skills/knowledge). Evidence suggested that students acquired the specific career skills and knowledge necessary to be successful in their industry following high school, but sometimes students lacked the necessary soft skills to be considered career ready. For instance, time management, problem solving skills, and customer service were sometimes lacking for students upon graduation from high school.

Discussion of Findings in Context of the Conceptual Framework

This study was grounded in the Whole Child Approach, which was described in depth in Chapter I. This approach does not restrict content knowledge to a specific subject, but instead adapts curriculum and content to meet the needs, preferences, and interests of individual students (Slade & Griffith, 2013). For this study, I focused on three of the five tenets in the Whole Child Approach: (a) engagement, (b) support, and (c) challenge. The importance of focusing on the whole child and specifically, the three tenets focused on in the framework became increasingly clear through the evidence collected for this study.

Engagement. According to the Association for Supervision and Curriculum Development (2019), engagement is defined as "students being actively engaged in the learning and connected to the school and community" (p. 1). The tenet of engagement was a prominent piece in student postsecondary success, and it surfaced multiple times across the five cases for this study. Teachers often discussed the importance of engagement and hands-on learning in both the core classes and CTE classes. Teachers expressed that they believed students would be more invested in the core content if it were often connected to the real world and student interest. Furthermore, evidence

suggested that engagement was essential within the CTE courses because students needed to be engaged with the industry expectations in order to be ready to enter the workforce following high school. Finally, the evidence presented proposed that engagement in career exploration activities helped students develop the necessary skills needed to attain postsecondary success.

Support. Support means that "student learning is personalized and supported by a caring and qualified adult" (Association for Supervision and Curriculum Development, 2019, p. 1). The tenet of support was an essential component of student career readiness in that the data suggested course and career guidance and differentiation of instruction were both crucial components of postsecondary readiness. Although the evidence of the data suggested the component of support as important, it also implied that support in the area of course and career guidance is lacking specifically with high school counselors. The teachers discussed students needing more counselor support when deciding on courses for their high school career. Furthermore, evidence suggested that differentiation in courses selected was essential. For instance, teachers implied that some of the fourth-year core classes are not needed for every student. The teachers suggested that it would be better to tailor these courses for necessary postsecondary goals.

Challenge. The tenet of challenge refers to "students being challenged academically and prepared for life following high school in whatever their next step may be" (Association for Supervision and Curriculum Development, 2019, p. 1). The teachers in this multiple case study agreed that students needed to be challenged academically but that not every student should have to take the same courses, specifically during the last year of high school. Evidence suggested that teachers believed students' course selection

should be tailored to individuals even in the core content areas. Furthermore, both career specific skills/knowledge and soft skills were an integral part in preparing students for life following high school. For instance, when Derek mentioned the specific skills necessary for welding, he discussed the different welding positions students needed to know as well as the importance of precision when performing these skills. Furthermore, he elaborated on the necessary soft skills by discussing the importance of dressing appropriately and thinking critically.

Discussion of Findings and the Review of Literature

As I studied Chapter II, the Review of Literature, I noticed that multiple aspects affected student career readiness. These categories include the following: student choice in coursetaking, rigorous CTE coursetaking and programs, and House Bill 5. The themes developed during the data analysis phase of my research can also be found throughout these three categories of my review of literature.

Student Choice in Coursetaking. Evidence from my study indicated that student choice in the courses they are choosing to take greatly impacts their postsecondary success. One of the themes developed from the data was course and career guidance, and one of the important aspects of this guidance was adequate planning and education on course selection for students. Furthermore, once these courses are selected, the data emphasized the importance of career exploration during instruction so students can recognize their vocational identity.

When reviewing the literature, DeFeo (2015) conducted a study whose findings reinforce the need for curriculum to include career exploration, so students can develop appropriate career goals. In a parallel study, Shalcross (2013) reported that happiness is

connected to satisfaction in a career, which emphasizes the need for career exploration, career development, and career planning in the high school setting. Savickas (2005) also emphasized the importance of developing vocational identity, but the recommendation was for students to begin this exploration of vocational identity early, which coincides with evidence from my study. Teachers agreed that career planning and exploration needs to begin earlier than eighth grade, and they even recommended starting as early as the sixth grade.

Rigorous CTE coursetaking and programs. In 1998, *The Forgotten Half: Non-College Youth in America* by the William T. Grant Foundation Commission on Youth and America's Future was published, and the article contended that students who entered the workforce directly from high school were "forgotten" (William T. Grant Foundation Commission on Youth and America's Future, 1988). In 2014, Schwartz conducted a study to determine if there was still a forgotten half in the United States. Schwartz (2014) concluded that there was still a forgotten group of students, and he suggested that the United States invest in rigorous CTE curriculum as well as rigorous academic courses. Schwartz (2014) was insistent that new CTE models needed to be implemented to combine career training for students with rigorous academics.

According to my findings, teachers agreed that rigorous academics and career training are both needed for a student to be career ready. Although they did not agree that every student should have to take the same academic courses, they were consistent about courses being taught at a higher level of rigor. Furthermore, evidence suggested that teachers believed career exploration and engagement needed to be implemented into the curriculum more often. This finding runs parallel to Shwartz's (2014) finding

regarding vocational programs in European countries. These programs combine classroom instruction with real-world experience in the workplace, and industry stakeholders are involved in the design of the curriculum for each career field.

At the end of Schwartz's (2014) study, he had six recommendations for building strong CTE pathways. According to my findings, four of the six recommendations were observed at high school where the study occurred: (a) all students were provided the same academic coursework through 10th grade, (b) academic skill development is integrated in each pathway, (c) pathway choice is decided by the student and family, and (d) pathways provide opportunities for higher education. The two recommendations that are not being implemented at the time of this study were as follows: (a) students were not receiving exposure to the workplace starting in middle school and a higher need was not placed on career counseling, and (b) although employers were involved in curriculum design and do provide internships, students are not paid for these internships.

House Bill 5. As discussed extensively in Chapter II, House Bill 5 was passed in Texas in 2013 and adjusted the graduation requirements for students. All high school students are required to graduate with a minimum of 22 credits, and within these 22 credits, students are required to take a certain amount of core curriculum. Under this plan, students have an option of choosing between five endorsement pathways for their elective course selection: STEM, business and industry, public service, arts and humanities, and multi-disciplinary studies.

For this study, the pathways researched were under the public service and business and industry endorsements because these endorsements offer certifications for students to acquire jobs directly following high school. Although the teachers in this

study affirmed the positive effect that House Bill 5 had on the CTE curriculum, they discussed the need to adjust the graduation requirements further. The teachers interviewed for this study all agreed that the core content areas like math and science should be tailored to better meet student postsecondary goals during their junior and senior years of high school. For instance, if a student wants to be a welder, having the student take math courses tailored to meet the needs of the welding industry would be more helpful than the math courses students are taking during their junior and senior years of high school.

Implications for Practice

The results of this research study have multiple implications for educators regarding career readiness. First, additional support needs to be provided to students in the areas of career counseling and course selection at the high school level. District and school administration need to try to streamline counselor expectations regarding career counseling. One suggestion would be to implement counselor and student one-on-one conferences every semester where discussions happen regarding postsecondary life.

Also, regarding counseling, more support needs to be offered to counselors in the high school setting. Implementing a counselor to focus strictly on career counseling could improve student career readiness and knowledge. Currently, there is a counselor at Grey High School who has the title of College and Career Facilitator, but according to the data collected, she focused more on college readiness. Having a counselor to solely focus on career guidance could help with postsecondary success.

Furthermore, evidence from this study implies that career exploration needs to begin earlier. I would suggest implementing real-world experiences into the curriculum

starting in the sixth grade and ask core-subject teachers to implement hands-on career exploration into their lessons. In addition to adding career exploration into the classroom, I recommend having students complete a survey and questionnaire to determine their interests related to careers. The results from this questionnaire should guide their endorsement choice as they enter high school.

In addition to starting career exploration earlier, real-world vocational application should also be integrated into the high school core content areas. For instance, a teacher can have students explore the career of an engineer by linking math content to the engineering field. Furthermore, necessary soft skills should be implemented into all course classes. Evidence indicated that teachers believed students were lacking necessary soft skills like problem solving and time management, which were both important to postsecondary success. Teachers need to identify the soft skills needed for career readiness and plan for ways to implement and teach these skills.

Results from this study indicate that resources in the CTE courses are often a concern. A suggestion to alleviate this concern would be to work with industry stakeholders to acquire these resources. Evidence suggested that student practice with adequate resources to mirror the industry setting is crucial to postsecondary success so working with these stakeholders could increase student career readiness. For instance, making sure that students have opportunity during their practicum to work with adequate employers within the industry being studied is crucial. During the study, Meredith spoke in depth about the importance of her students working closely with veterinarians, and Izzie discussed the multiple opportunities that her students experience at the local

hospitals. These experiences help prepare students for postsecondary success by providing them with real world experience in the prospective fields being studied.

Professional development should be implemented for educators on multiple levels: counselors, core teachers, and CTE teachers. In regard to counselors, they should attend professional development to learn about the different endorsement pathways and career options for students. This professional development would provide them with the information necessary to adequately educate students on appropriate vocational goals. Professional development for core content teachers should focus on supplementing their instruction with career exploration. These lessons should focus on hands-on, engaging activities where students get to experience multiple career industries. Finally, professional development for CTE teachers should be specific to their content area. According to the results, CTE teachers need professional development focused on their pathway, so they can stay up-to-date on accurate information regarding their industry.

During the interviews, teachers discussed professional development often being conducted with all CTE teachers, but this practice was not effective for their specific content areas. For instance, Christina discussed the need for yearly professional development in the area of law enforcement because laws and policies are constantly changing, and she needs to stay current on these issues to properly educate her students. Furthermore, Izzie discussed the need for more simulation within Health Science, and teacher professional development is needed to effectively integrate these simulations into the classroom setting.

Finally, results from this study imply that adjustments should be made to high school course requirements. Evidence from this study suggests that policymakers should

consider course requirements for Grade 11 and 12 students. According to the teachers in this study, following students' sophomore year in high school (Grade 10), core classes should be tailored to postsecondary goals. For instance, if a student is not attending college, core content should be tailored to their vocational needs. Meredith, the animal science teacher, suggested that students within her pathway should spend more time in the veterinary clinics and take science and math classes that are applicable to veterinary medicine there junior and senior year of high school instead of taking the required classes for graduation.

Recommendations for Future Research

There are multiple recommendations for future research to expand the findings from this study. First, this study was confined to a single high school, and only five CTE teachers were interviewed. This study should be replicated at more schools and districts to determine if the findings are valid to a large population. By replicating the findings in multiple setting and with a larger population, the information could be used to impact policies and procedures beyond the local school level. For instance, House Bill 5 could be adjusted to tailor graduation requirements for students in their last two years of high school.

Having different perspectives of student career readiness following high school would add to the research surrounding this topic. By speaking to industry stakeholders, teachers could have a better understanding of the industry expectation for students as they enter the workforce. Furthermore, employers' feedback could provide implications for changes in curriculum and instruction. By exploring the perception of career readiness in core content teachers, educators could have a better understanding of how to implement

cross curricular learning and how to implement career exploration within the core areas. Finally, by studying student perceptions of career readiness, teachers could understand where students are lacking, and counselors would have a starting point for career counseling.

Summary

In conclusion, I explained the findings of this research study in context of the research question: How do selected CTE teachers perceive students' career readiness in their CTE pathway? Four themes (i.e., curriculum, instruction, course and career guidance, necessary employability skills) regarding career readiness emerged from the data, and evidence suggested that students were ready in some areas (e.g., CTE curriculum and career skills/knowledge) but not in others (e.g., soft skills and career exploration). Findings were discussed in context of the conceptual framework and with the review of literature. Finally, implications for practice were provided, and the chapter ended with suggestions for future research regarding student career readiness following high school.

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APPENDIX A

Interview Protocol

1. Tell me about yourself and the content area you teach in CTE.
    a. Tell me about the field you worked in prior to being a teacher?
2. What does career readiness look like for your students?
    a. What are the most important components of career readiness?
    b. Give me some examples of first jobs that your students now have.
    c. What are some necessary soft skills students need to be successful in these jobs?
    d. What do students need to know to keep their job in your content area?
3. To what extent do your graduating seniors meet your definition of career readiness?
    a. How do you know they are career ready?
    b. What characteristics do you look for?
    c. How would you evaluate these outcomes in your classroom?
4. What instructional supports are needed to prepare your students? Are there any barriers, and if so what are they?
5. Think about students you have worked with in the past who were not ready to enter their first job. Please describe them to me.
6. Do you have any thoughts about the common core curriculum? (In Texas, this is the Foundation High School Plan where students are required to take a certain amount of English, science, social studies, and mathematics courses)?
    a) To what extent do you feel these courses help prepare students for the workforce following high school?

b) How could courses outside of the CTE spectrum help develop the necessary skills to prepare students for work after high school?

c. Are there any courses students take that you feel don't contribute to success in your field of study?

7. Do you have an opinion of House Bill 5 and students having to choose an endorsement their freshmen year?
   a. What happens when students change pathways?
   b. How does the school support students when they are selecting their course streams and endorsements?
8. Think about your own course curriculum within the different endorsements. How effective is the current high school curriculum for your course in preparing students for the workforce? What suggestions might you offer?
9. Talk to me about the practicum required through your course stream. What kind of jobs do students have during their practicum program? Describe the barriers students might face during their practicum.
10. Talk to me about the Career and Technical Student Organization associated with your area. How does this organization help prepare kids?
11. Would you like to add any additional comments regarding student career readiness in your field of study?

APPENDIX B

Codes from Initial Coding

Code Description	Order of Codes
Background Information	1
Definition of Career Readiness	2
Student Career Readiness	3
Instructional Supports Needed	4
Common Core Curriculum	5
House Bill 5	6
Course Curriculum	7
Practicum	8
CTSO	9
Constructive Criticism	10
Working with Bosses (Veterinarian Behavior)	11
Self-Advocacy	12
Communicating with Clients	13
Course Content	14
Interacting with Animals	15
Animal Observation	16
Office Expectations	17
Career Readiness for Juniors an Seniors	18
Academic Assessment - Knowledge of the Content	19
Interacting with others and interacting with the animals	20
Self-Initiative	21
Live Animals in the Classroom	22
Small Class Sizes	23
Rigorous Material in the Upper Level Classes	24
One-on-one support	25
Opinion of Core classes not needed	26
Including relevant, application based core content	27
Relevant AP Courses	28
Not every class is right for every student	29
Fourth Year Core Classes are not needed	30
Courses that are applicable to a career instead of 4th year core classes.	31
Testing dictates what students are learning	32
Teacher apathy students' senior year because of state testing	33
Colleges like to see consistency	34
HB-5 helps with planning and goal setting	35

Certification is at the lowest level: CVA (Certified Vet Assistant) level one	36
Description of CVA certification and job status	37
Student plans following high school	38
Differentiation based on the student needs in class	39
Teacher goals for students	40
Description of practicum at vet clinic	41
Practicum Responsibilities at the clinic	42
Practicum Responsibilities at the school	43
Working with other classmates at the clinic	44
Communication regarding their schedule	45
Self-responsibility and taking ownership	46
Practicum Hours	47
Curriculum & Resources	48
TEKS - Good & Rigorous	49
Lack of scope and sequence	50
Barrier - Having to consolidate large amounts of material into a single year	51
List of Resources Available	52
Description of what FFA is	53
FFA is built into TEKS	54
Practicum is considered the SAE portion of FFA	55
Contests associated with FFA	56
Description of what the students do during the contest portion of FFA	57
Self-Motivation for the contest	58
In class prep for contest through FFA	59
A lot of student success because they participate in the contest portion of FFA	60
Type of kid who is a part of the contest team for FFA	61
Students who are not ready to enter the workforce	62
Certification in Surf Safe Management	63
Certification is hard. Full semester course in college	64
Teacher goals for students passing the certification test.	65
Test proctor	66
Restaurant Manager	67
Sell themselves, maintain conversation	68
Math skills needed, communication with people, staying current on cultural events	69
Employability skills like resume building and interview skills	70
How to hire and fire people. Knowledge of restaurant brands.	71

Pushing the culinary program to be more about the hospitality industry to reach more venues	72
Students not in the right place	73
Not as many students ready to enter the workforce as she would like. By the time they get to their senior year, they want to have a senior off period, which causes conflict for preparing students.	74
Students who go all the way through the endorsement path and go through the practicum are career ready	75
How job readiness is assessed in the classroom	76
Ways students demonstrate their ready for a job	77
Grading scale and ways students demonstrate mastery	78
Textbooks that have vocabulary but teachers don't use them a lot. Students need to learn by doing.	79
Repetition is important	80
Barriers - Students are in the wrong pathway	81
Finding a way to gauge students interests so they don't end up in the wrong pathway	82
Students who don't want to do anything are in her course.	83
Providing direction for our students. . Finding out their interests early on so they end up in the right endorsement	84
Lack of self-awareness	85
Lack of support at home	86
Too busy outside of school or outside concerns	87
Work ethic is essential	88
Figuring out what students really want to do and providing them with direction based on those interests	89
Difficulty of certification exam	90
Hone in on what students really want to do and making sure students really understand what happens in the different endorsement paths.	91
Students have unrealistic expectations of what will happen in their endorsement classes	92
Senior year core classes are not needed	93
Senior year, AP courses are good because they're getting a deeper knowledge of the previously learned content	94
Courses related to CTE should be offered during students' senior year.	95
Math needs to focus more on everyday skills needed	96
Resume building, behaving in public, and speaking to other people need to be included in the core content curriculum	97
Social skills need to be taught somewhere.	98

Students shouldn't have to re-take courses they're not being successful in.	99
Students who are unsuccessful in core classes, should be placed in career building classes	100
HB-5 - Students shouldn't be allowed to switch endorsements. They need to be committed to a career and their interests.	101
Finding what interests them and preparing them for the real world	102
Counselors need to do a better job of educating students on the pathways. There are students in her classes that shouldn't be there.	103
Classes are needed that focus on skills like buying a car, handling your money, filling out a resume	104
Classes on applying for college	105
Classes to teach soft skills	106
Basic cooking class but not for a career in culinary	107
Enough time isn’t spent finding out what kids like and want to do. Need to start earlier.	108
We need to help students find their passions earlier to make sure we get them in the right endorsement in high school	109
TEKS from the state and how she integrates them	110
Description of practicum jobs	111
Reasons there aren't a lot of kids in the practicum	112
Students often don't do the practicum because they want to have a senior off period.	113
How practicum helps prepare the students	114
Benefits of the practicum	115
CTSO is a lot of work outside of the school day for the teacher.	116
Challenges vs competition - Competition is a lot of work on the teacher	117
Students should do their own work and take ownership of their own learning.	118
Prostart is the organization about culinary only. FCCLA and Skills USA cover all CTE areas.	119
We need to help students find what they want and make sure they're in the right place	120
Counselors need to spend more time guiding students to take the courses they're interested in instead of playing a number game with courses.	121
Counselors are not making wise choices when putting students in classes	122
HB-5 needs tweaking	123
Information given to parents about course selection is overwhelming.	124

Core classes are more important when it comes to scheduling classes so CTE gets put on the back burner	125
The focus is too much on testing. Core classes should shift their focus to integrating real world material in the classroom.	126
HB-5 is a step in the right direction	127
CTE isn't well advertised and people don't know about or understand it.	128
Two certifications are offered: 911 National Certification & Basic Jailor Certification	129
Teachers meet with the county sheriff to tailor their curriculum to meet county guidelines for jobs	130
Students who are career ready have the knowledge, skill, lingo, and know the code, ethics, and policy of the field	131
Testing for the 911 certification in the spring is hard because seniors checkout.	132
For students to have a foot in the door and be employable in this field, they need the certifications	133
You can train a student how to be successful at the skill part of the job.	134
Professional problem solving is important	135
Many jobs are available to students when they receive their certifications through the Law Enforcement Endorsement.	136
Technical skills are important	137
Knowing the protocol and understanding what they're dealing with	138
Class discussions help prepare students.	139
Mental maturity is important	140
Listening skills	141
Teacher training is needed	142
The content that is being taught is based on teacher knowledge, so she needs updated training on updated law.	143
Has to do research on updated laws and policies to educate students	144
Inadequate district PD. Training varies from district to district.	145
Outdated materials	146
CTE program budgets	147
Lack of funding in the district to take kids to different activities and competitions	148
We modify the work too much and it hinders students' career readiness, especially for SPED and 504 students.	149
Real life doesn't modify the work for you. You'll have to pass a certification test without modifications.	150

Every kid is different so every kid shouldn't have to take the same thing.	151
We should give kids tools to help them be successful instead of modifying everything.	152
CTE courses do because they provide them with technical skills that employers are looking for.	153
Our counselors could do a better job of educating students on what is available. Students don't know what we have to offer and get to their senior year still not equipped to enter the workforce.	154
In the lower classes in the endorsement, they learn the basic foundation of law enforcement.	155
In the core classes, students really start breaking through their shell and deciding where they want to focus in law enforcement.	156
The core classes help prepare students for college and if you want to move up in the field you have to have an associate's or a four year degree.	157
HB-5 is a great idea but we need to start career exploration earlier. We have to help students figure out what they like.	158
The career exploration needs to be hands on not just theory based.	159
Hands on, interactive career exploration would help them figure out what endorsement they want to be a part of in high school.	160
Home support in deciding what they want to do	161
TEKS written by law enforcement people	162
Fight with counselors to get students in her upper level classes	163
Fighting to get a practicum set up	164
Unqualified teachers are teaching the courses.	165
Skills USA - Students learn personal and workable skills	166
Skills USA - Students have to know necessary skills in law enforcement	167
Other teachers won't help with Skills USA because of the extra time and they don't get compensated	168
Components of Skills USA that the students participate in.	169
Extra time spent on Skills USA	170
CTE only recognizes CTSOs approved by Perkin's funds.	171
Outside CTSOs have to be paid for out of students' own pockets or by fundraising	172
Need qualified instructors	173
CTE teachers need to go above and beyond the 8 to 5 expectation	174
There is an issue with her students getting into required sciences for her endorsement because counselors are placing students in there for their fourth science.	175
Students should be able to graduate high school with an associate's degree	176

Health science splits into two separate tracks at this campus: people and animal.	177
Certifications their sophomore year: CPR, automated external defibrilator, and blood borne pathogens	178
Certifications their junior year: EKG and ECG	179
Certifications for advanced practicum kids: EKG and phlebotomy	180
Nurse assistant certification	181
Certification for 2021: pharmacy technician	182
Students have to know the laws with patient confidentiality and HIPPA.	183
HIPPA	184
Students need to learn about compassion and customer service	185
Understanding cultural diversity is important	186
Knowing how to problem solve is important	187
Keeping kids invested in the program through medical rounds when they enter college	188
Pharmacy technician	189
Career readiness out of high school doesn't have to mean your final career	190
Being able to speak the language is important	191
Being able to communicate the language to their patients and speak professionally	192
Being able to communicate with different people and transform the medical language in terms that patients can understand	193
Body Language	194
Customer service	195
Time management	196
Job seeking skills and professional behavior like promptness, dependability, working with others.	197
Respect for others	198
Students really struggle with empathy	199
Changing the perception of the class that it's not a blow off class where they will get an easy A.	200
Educating the counselors on who should be in the health science classes.	201
Lower level health science classes are large	202
Upper level health science like clinical rotations are limited by the hospital.	203
Space is essential.	204
More money is needed. Medical supplies are expensive.	205
Simulation ability and patient mannequins and clinical beds are needed bu there isn't space to put them.	206

Resources like the carts are still in the rooms that aren't really necessary.	207
We need to catch up to other health science programs around the state.	208
Students who are not ready to enter the workforce are entitled and undependable	209
No time management	210
Entitled	211
Examples of how students act in the classroom who aren't ready for the workforce	212
Texas is behind in preparing students for college and their quality of secondary education.	213
Foundation program is a good foundation for what students are going to need in college.	214
With a seven or eight period day, the electives can move around the core classes and help supplement.	215
Educate students early when they choose their endorsement that they will have to give up senior off or take a summer class to participate in the practicum.	216
Four by four is solid with the supplement of the endorsement.	217
Students have so much going on at one time electronically.	218
Putting the theory to practice. Have the students actually apply and do real world application.	219
Teachers have too much on their plates to do all the extra work to think creatively.	220
Changing theory to action.	221
Engaging different types of students.	222
All classes are important to the health science pathway.	223
Anatomy and Physiology should be required for health science pathway.	224
Having students choose a pathway their 8th grade year is unrealistic because they don't know what they want to be yet.	225
Multi-disciplinary is good because they can try different things but then they can't complete their endorsement.	226
Postsecondary institutions don't care about endorsements.	227
Students should build their resumes instead of writing about their pathways or endorsement because colleges don't care.	228
Academies show tremendous success for students postsecondary readiness and success.	229
Career academies help better prepare students for Health Science, and if we're not going to do that then we need to let them dabble in other things to find out what they really want to do.	230

8th grade students for the most part didn't know what they wanted to do so it didn't work.	231
Students who had interest and were educated about what they wanted to do were very interested which opened up opportunities to talk to parents and communicate the expectations.	232
Counselors support the program so they educate the students on the courses.	233
TEKS are good.	234
There are courses offered that the school doesn't offer because they don't have the staff or space to do so.	235
TEKS can be expanded to hit minimums when necessary. A lot of stakeholders were included in writing the TEKS.	236
Practicum when students are juniors consists of rotations at the hospital. OR, respiratory, labs, labor & delivery, ER, radiology & imaging, wound care, cath labs.	237
Students don't know very much when they're in their practicum. Staff in the hospital can be difficult because they don't want to deal with the students.	238
Students are extra work in the hospital	239
Initially, risk managers didn't see benefits to having high school students in the hospital.	240
After extended breaks, they have to re-prove they're worthy of being in the hospitals.	241
Sometimes staff ask them to do things they shouldn't be doing in the hospitals.	242
Sometimes our kids know more than the nursing students.	243
Hands on and not much theory.	244
Student led so they have to take initiative	245
Students get back what they put in.	246
HOSA is self driven and they have to want it. Most students just join to put it on their resume and we offer so much they join other clubs and organizations.	247
It's important to keep kids engaged at the postsecondary level.	248
Students get a certification in AWS welding like they would at a university.	249
The district sent welding teachers to training to be able to certify their own kids.	250
Students are certified per position so jobs are limited because our students are only certified in one position.	251
Certification testing is expensive (about $250 per position) and the district only trains them to certify in one position.	252
Certification gets them out of one class in college, but they will need more certifications in different positions to make a living.	253

Getting certified in one position takes roughly 150 to 200 hours to be proficient, and a lot of kids don't pass because of the hand-eye coordination and concentration required.	254
They have agreements with local colleges and trade schools.	255
You will be re-tested once you get a job because employers want to ensure you have appropriate skills to weld what they need.	256
In a job, they typically test the students periodically throughout their tenure to keep their job. Welders have to be able to perform on demand all the time.	257
Soft skills are not needed in the welding industry. It's a rough business where language is rough and people aren't coddled.	258
Students have to often be counseled and coached for what there about to enter into because otherwise they're shell shocked by the rawness of the industry.	259
Most students are not ready to enter the workforce when they graduate because they need more time in a welding booth and more practice.	260
There is a lot of hands on practice in the welding classroom, and the teacher does a lot of modeling. Safety is a huge piece of the class!	261
When they leave, students don't take a written test. It's all performance so that's what the classroom looks like as well.	262
There aren't places for students to go and practice when they leave which is a problem.	263
Most kids think they want to go to college but they're not cut out for college. The teacher has to bring in people from the trade school and educate them on it because they don't know it's available.	264
Everything is really expensive, and it's expendable.	265
Maturity is lacking.	266
More real world experience is needed	267
They struggle with problem solving and finding answers on their own. Common sense is lacking.	268
It's hard to assess where you need to start with students to teach them common sense. You often have to go back a lot further than you would think.	269
The welding industry is different than any other field, and students often have a hard time with the harsh reality. "Close isn't close enough. You've got to be spot on."	270
Some students will not be able to do it because of hand-eye coordination. They can still work in the area by doing other things.	271
Students don't need to take some of the upper level math if they're going to go into welding.	272

We need more classes on real world stuff like balancing a checkbook.	273
Reading, writing, and history are needed.	274
Getting away from the four-by-four has opened up students to take more electives.	275
We're more pathway driven now. In high school students are exploring their interests and often don't know what they want to do yet.	276
Too much like college where they meet with an advisory and they're told what classes to take.	277
High school should be about letting the students find themselves. If they do it in high school, they will not waste as much money when they change their major in college.	278
TEKS require a lot of real world experience which is good.	279
Try to mirror core classes too much because the industry is foreign to them. Welding can't move so fast because certain things have to be done in a certain order and students have to practice those skills.	280
Some things aren't covered in depth.	281
Suggestions on changing the welding TEKS.	282
Upcoming practicum, changes for students.	283
VATAT teacher union for ag teachers.	284
FFA is the student organization through welding. Students participate in contests where they can get scholarships and awards.	285
Students don't meet people in industry at these contests. Most networking occurs through people that are brought into the classroom by the teacher.	286
CTE is so broad and big.	287
Counselors need to be educated on industry based work, so they can educate the students.	288
There's not a lot of push for students to take CTE classes because more funding comes from students taking PreAP and AP classes.	289
Industry people need to be more involved in the school system and curriculum to capture kids for their jobs.	290
Students lack employability skills.	291

APPENDIX C

Codes from Second Cycle Coding

Description of Code	Order of Codes
Background Information	1
Definition of Career Readiness	2
Student Career Readiness	3
Instructional Supports Needed	4
Common Core Curriculum	5
HB-5	6
Course Curriculum for CTE	7
Practicum	8
CTSO	9
Soft Skills	10
Differentiation	11
Standardized Testing	12
Postsecondary readiness	13
Educating Students about Pathways	14
Pathway Planning	15
Student Support	16
Counselor Support	17
Teacher Responsibility	18
Career Exploration	19

Misc	999

APPENDIX D

University IRB Approval

- Date: Mar 2, 2020 12:45 PM CST
  TO: Kayse Lazar Julie Combs
  FROM: SHSU IRB
  PROJECT TITLE: Teacher Perception of Student Career Readiness Following Certification Attainment in a Specified Career and Technical Education Pathway
  PROTOCOL #: IRB-2019-422
  SUBMISSION TYPE: Initial
  ACTION: Approved
  DECISION DATE: March 2, 2020
  ADMINITRATIVE CHECK-IN DATE: March 2, 2021
  EXPEDITED REVIEW CATEGORY: 6. Collection of data from voice, video, digital, or image recordings made for research purposes.
  7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

  Greetings,

  The above-referenced submission has been reviewed by the IRB and it has been Approved. Because this study received expedited review and the IRB determined that a renewal submission is not needed, this decision does not necessarily expire; however, you will be receiving an email notification on the anniversary of this study approval, which will be on March 2, 2021 (**NOTE:** please review the reminder information below regarding Study Administrative Check-In). This study approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

  Since Cayuse IRB does not currently possess the ability to provide a "stamp of approval" on any recruitment or consent documentation, it is the strong recommendation of this office to please include the following approval language in the footer of those recruitment and consent documents: IRB-2019-422/March 2, 2020/March 2, 2021.

  Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Modifications: Please note that any revision to previously approved materials must be approved by this committee prior to initiation. Please submit a Modification Submission through Cayuse IRB for this procedure.

Incidents: All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please submit an Incident Submission through Cayuse IRB for this procedure. All Department of Health and Human Services and sponsor reporting requirements should also be followed.

Study Administrative Check-In: Based on the risks, this project does not require renewal. Rather, you are required to administratively check in with the IRB on an annual basis. March 2, 2021 is the anniversary of the review of your protocol. The following are the conditions of the IRB approval for IRB-2019-422 Teacher Perception of Student Career Readiness Following Certification Attainment in a Specified Career and Technical Education Pathway.

1. When this project is finished or terminated, a **Closure submission** is required.

2. Changes to the approved protocol require prior board approval (**NOTE:** see the directive above related to **Modifications**).

3. Human subjects training is required to be kept current at citiprogram.org by renewing training every 5 years.

4. If incidents (i.e., adverse events) or unanticipated problems involving risks to subjects or others (UPIRSO) (e.g., data collected unintentionally without obtaining informed consent) have occurred during this approval period, you are required to submit a Incident to report the adverse event or UPIRSO to the IRB.

Please note that all research records should be retained for a minimum of three years after the completion of the project. If you have any questions, please contact the Sharla Miles at 936-294-4875 or irb@shsu.edu. Please include your protocol number in all correspondence with this committee.

Sincerely,

Donna M. Desforges, Ph.D.
Chair, Committee for the Protection of Human Subjects
PHSC-IRB

VITA

Kayse Lee Lazar

Degrees Earned

Master of Education, Educational Leadership, University of Houston Victoria
Bachelor of Science, Mathematics Education, Louisiana Tech University

Professional Licensure and Certifications

Texas Standard, Superintendent
Texas Standard, Special Education Grades (EC-12)
Texas Standard, Mathematics Grades (8-12)
Texas Standard, Principal Grades (EC-12)
Texas Evaluation and Support System, 2015-2017
Professional Development Appraisal System, 2013-2015

Publications

Lazar, K. L., & Slate, J. R. (2018). Differences in career and technical education coherent sequence graduates between students in special education and students in poverty. *American Association for Science and Technology*, *1*(2). Retrieved from http://www.aascit.org/journal/llc

Presentations

Lazar, K. L., Merchan, R. A., Michaels-Johnson, R. R., & Ustinoff-Brumbelow, R. (2018, February). *Exploring the impact of 1:1 technology initiatives: A case study.* Paper presented at the Southwest Educational Research Association, San Antonio, TX.

Professional Experiences

Lamar Consolidated Independent School District, George Ranch High School, Assistant Principal
Lamar Consolidated Independent School District, Terry High School, Instructional Coordinator
Lamar Consolidated Independent School District, Terry High School, Math Teacher and Math Department Chair
Fort Bend Independent School District, Kempner High School, Special Education Math Resource Teacher

Fort Bend Independent School District, Kempner High School, Math Teacher and Geometry Team Leader

Professional Organizations

Texas Association of Secondary School Principals