

ABSTRACT

Career Exploration from Policy to Practice: A Qualitative Study on the Influence of Advisory Committees on Education Outcomes and Future Employment Outlook

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Economic analysts project an increase in future employment opportunities for U.S. workers. They also predict the U.S. workforce will be ill-equipped to take advantage of the new opportunities (U.S. Bureau of Labor Statistics, 2018). The anticipated educated-worker shortage is a national issue that requires federal resources and collective, comprehensive interventions.

In recent years, Career and Technical Education (CTE) programs emerged as a promising opportunity to prepare young people to meet future employment demands. To address the growing educated worker gap, Congress authorized additional federal funding to increase CTE opportunities. The legislation also mandated advisory committees' involvement to ensure CTE programs include academic rigor and work-based learning experiences. While federal law requires the formation and use of advisory committees to aid in the implementation of CTE programs, assessing the implementation fidelity of such programs can determine the real impact of CTE and determine whether these programs can be relied on to reduce the educated worker shortage (Hudson et al., 2019).

This multiple case qualitative research study explored advisory committees' role in the ongoing administration of CTE programs and examined their perceived roles regarding those programs and their outcomes. The literature emphasized in this study included the need for a skilled, better-educated workforce, a discussion of the historical perspective of education, an assessment of the effectiveness of current career exploration efforts, a review of advisory committee involvement, and finally, the argument for studying implementation fidelity of CTE programs.

The researcher conducted semi-structured interviews with 15 participants from four Central Texas school districts. The researcher used the implementation fidelity theoretical framework to identify the following shared themes that emerged across the four cases: strong community support and advisory committee involvement are essential to CTE programs' success; the need for improved program alignment to address the local community's workforce needs; and opportunities to explore innovative solutions to the increasing demand for qualified CTE instructors. These findings offer empirical evidence to support implementation fidelity as a program prerequisite, legislation to address pay inequality for qualified instructors, and the need for administrators to evaluate advisory committee's design to improve member engagement.

Career Exploration from Policy to Practice: A Qualitative Study on the Influence of
Advisory Committees on Education Outcomes and Future Employment Outlook

by

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DEDICATION

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CHAPTER ONE

Introduction to the Problem of Practice

Introduction

Education-related interventions can be “complex and extensive” (Wilkes & Bligh, 1999, para. 1). Career and Technical Education (CTE) programs are not only complex but expensive too. In 2004, federal funding for CTE programs totaled \$1.7 billion. For the 2021 fiscal year, the White House proposed \$2.1 billion in federal funding (Dougherty, 2020; Klein, 2020). The increased investment is partly due to America’s widening skills gap and growing educated-worker shortage (Wiley Education Services, & Future Workplace, 2019). Researchers report CTE programs’ effectiveness on education outcomes citing increased high school graduation rates and college degree attainment rates (Bragg & Ruud, 2007; Dalporto, 2019; Plank, 2001). Research studies indicate improved employment opportunities, such as higher wage-earning jobs (Bishop & Mane, 1999, 2004; Light, 1999; Stern et al., 1997). However, few studies monitor CTE program implementation (Carroll et al., 2007).

Nevertheless, the greater levels of complexity and the federal government’s increased financial investment necessitates research evaluating the fidelity implementation of CTE programs, particularly the federally mandated involvement of advisory committees. According to Hudson et al. (2019), “factors that shape and influence implementation are seen to be complex, multifaceted and multileveled” (p. 1). As governments become more keenly aware of the intricacies involved with executing

policy, there is growing interest in ensuring “intentions are turned into results” (p. 1). Because the implementation of CTE programs is extensive and involves many stakeholders, the current researcher focused on the level of fidelity used in implementing advisory committees, specifically on the committees’ role in developing, implementing, and managing CTE programs.

Implementation fidelity evaluates the execution of an intervention or program compared to its original intent as envisioned by the program designer or, in this study, legislative policy (Carroll et al., 2007). Hudson et al. (2019) contend that “policies do not succeed or fail on their own merits; rather, their progress is dependent upon the process of implementation” (p. 1). Results of multiple research studies reported a strong association between program implementation’s fidelity and its success (Dane & Schneider, 1998; Dusenbury et al., 2003; Elliott & Mihalic, 2004). According to Carroll et al. (2007), “Evaluation of implementation fidelity is important because this variable may not only moderate the relationship between an intervention and its outcomes, but its assessment may also prevent potentially false conclusions from being drawn about an intervention’s effectiveness” (p. 2). Analyzing implementation fidelity allows stakeholders to validate whether a program or intervention has been appropriately implemented.

Advisory committees are a vital resource used by CTE programs. These committees offer education programs an opportunity to engage with their surrounding community (Teitel, 1994). The advisory committee’s role is to ensure CTE programs’ quality by involving community and business professionals in the programs’ design, implementation, and ongoing compliance. Not only are advisory committees fundamental

to CTE programs, but The Strengthening Career and Technical Education for the 21st Century Act, also known as Perkins V, mandates their involvement in any programs desiring federal funding (U.S. Department of Education, 2018). According to Teitel (1994), “The potential benefits of advisory committees in a program’s improvement are enormous, but for many advisory committees, the potential is not fully realized” (p. vi). Empirical evidence emphasized the significance of researching the fidelity of implementation of education-related interventions (Durlak & DuPre, 2008; Gottfredson & Gottfredson, 2002). These research studies described how implementation fidelity could help the researcher better understand the advisory committee implementation process and how well their role or level of involvement adhered to the Perkins V legislative requirements.

Statement of the Problem

Future employment predictions show increasing employment opportunities for the U.S. labor market (U.S. Bureau of Labor Statistics, 2018). Nevertheless, similar reports reflect a less desirable outlook for American workers’ abilities to meet those needs (Carnevale et al., 2013; Martinez et al., 2017; U.S. Bureau of Labor Statistics, 2018). Economic analysts report the current estimated shortage of five million college-educated adults will increase to a 23 million worker shortage by 2025 (Carnevale et al., 2013). Forecasts of future employment demands reveal a critical need for a more skilled, educated workforce. This anticipated shortage has heightened the focus on college and career readiness for high school students.

Career day, career exploration courses, career academies, and magnet schools are a few interventions to equip learners with essential job skills. However, CTE programs emerged as a comprehensive, multifaceted option providing

career pathways, work-based learning, and school-employer partnerships—all designed to build skills, engage students and create opportunities for a successful transition to a variety of post-secondary possibilities: earning a certificate, attending a two-year or four-year college, or stepping into a career. (Rosen, 2017, p. 1)

Researchers report that CTE programs improve student engagement, reduce dropout rates, increase high school graduation and college degree attainment rates, and increase earning potential (Bishop & Mane, 1999, 2004; Bragg & Ruud, 2007; Dalporto, 2019; Light, 1999; Plank, 2001; Stern et al., 1997).

The Carl D. Perkins Career and Technical Education Grant Improvement Act of 2006 stipulates that any school seeking grant funds for providing one or more CTE programs must develop and maintain an advisory committee (U.S. Department of Education, 2007). Policymakers expect advisory committee involvement to improve the quality of CTE programs. According to Region 8 ESC Career and Technical Education (n.d.), “The primary purpose of the local advisory committee is to assist educators in establishing, operating, and evaluating programs which serve the needs of students, business and industry, and to provide expertise pertaining to technological change” (p. 5). However, just having an advisory committee does not ensure that CTE programs will benefit from their involvement (McKenna et al., 2014). McKenna et al. (2014) argue variability in implementation “may limit or negate the potential benefits” (p. 15); thus, advisory committees’ role or level of involvement in developing and managing CTE programs may significantly impact the outcomes of the programs.

As expectations for a more educated workforce have increased, so have the challenges many schools face in trying to meet those growing external pressures. “The inevitable conclusion from the evidence at hand is that the old system is no longer adequate to the task” (Betts, 1992, p. 41). Secondary school reform has a long, documented history of implementing initiatives to prepare high school graduates to either successfully enter the workforce or pursue post-secondary education (Stone, 2017). However, the projected college-educated worker shortage suggests previously implemented interventions are not adequate to meet future needs.

Purpose of the Study

This study explored advisory committees’ role in implementing and ongoing oversight of CTE programs offered by public independent school districts (ISD) located in Central Texas. Many research studies support the urgent need for career exploration and report on the benefits of CTE programs (Bishop & Mane, 1999, 2004; Bragg & Ruud, 2007; Dalporto, 2019; Light, 1999; Neild et al., 2013; Plank, 2001; Stern et al., 1997). However, few studies have researched the influence community and business partners serving on advisory committees have on CTE program implementation and compliance.

This researcher sought to answer the central research question—What is the role of advisory committees in the implementation and ongoing oversight of CTE programs offered by Central Texas public independent school districts (ISD)? Also, there were four secondary questions posed for consideration:

1. What do advisory committee members, CTE program administrators, and CTE instructors perceive is their role regarding their ISD’s CTE programs?

2. What do advisory committee members, CTE program administrators, and CTE instructors believe about the effectiveness of their ISD's advisory committee in developing and implementing CTE programs?
3. How well do advisory committee members, CTE program administrators, and CTE instructors perceive their school's CTE program aligns with Perkins V legislative requirements?
4. What do advisory committee members, CTE program administrators, and CTE instructors believe about the effectiveness of their school's CTE program on education outcomes and employment opportunities?

As the projected growth in the number of future jobs requiring post-secondary education increases, so do the concerns about future workers' preparation to meet those demands (U.S. Bureau of Labor Statistics, 2018). The anticipated shortage of qualified workers and the projected increase in demand for an educated workforce supports the need for college and career readiness interventions, particularly work-based learning opportunities. Researchers believe that such programs educate students on the various careers available to them and engage young people in the learning process (Robinson & Aronica, 2015). However, the demands on America's secondary education systems are high. Along with maintaining high academic standards, today's public school systems must meet standardized testing requirements, manage conflict resolution, and teach social and emotional learning skills.

Education is a process that encompasses more than just the transfer of knowledge or the completion of a task and requires the involvement of more people than school administrators and teachers. Henderson and Mapp (2002) argue, "The responsibility for children's educational development is a collaborative enterprise among parents, school staff, and community members" (p. 51). Even though federal legislation requires the creation of advisory committees to receive federal funding, the rules lack specificity on how those boards should function. Understanding the impact of engaging business and

community partners in CTE programs can guide the best approach to offering career interventions and encouraging young people to make meaningful connections to future career paths.

Theoretical Framework

In education, evidence-based interventions are essential to providing programs and services that deliver proven results. Yet, when rigorously tested, evidence-based interventions are deemed effective within a controlled study context and implemented in everyday settings such as school environments, the results of such interventions may vary greatly from expectation. “A large body of research now shows that well-designed programs poorly delivered are unlikely to achieve the outcomes policymakers and citizens expect” (Pew Charitable Trusts and MacArthur Foundation, 2016, p. 1). Exploring a program’s implementation fidelity ensures properly executed education programs and improves the likelihood of desired outcomes.

An *a priori* theoretical framework was used in this study to evaluate advisory committees and their involvement in the design and ongoing oversight of CTE programs. The researcher analyzed the data collected based on a modified implementation fidelity framework initially developed by Carroll et al. (2007) and later adapted by Hasson (2010). The phrase implementation fidelity, also referred to as fidelity of implementation, is “the degree to which . . . programs are implemented . . . as intended by the program developers” (Carroll et al., 2007, p. 1). Variances in the degree of implementation fidelity could impact program effectiveness.

Carroll et al.’s (2007) theoretical framework attempted to ascribe meaning to the notion of fidelity while also providing context to the five fidelity dimensions.

Implementation refers to “a specific set of purposeful processes and activities designed to put into practice an intervention or program of known dimensions” (Pérez et al., 2016, p. 2). The implementation fidelity framework uses five dimensions: adherence, dose, quality of delivery, participant responsiveness, and program differentiation (Dane & Schneider, 1998; Dusenbury et al., 2003; Dusenbury et al., 2005; Pérez et al., 2016). The adherence component focuses on ensuring that program implementation adheres to guidelines. The dose dimension refers to the frequency of exposure to the program, and the quality of delivery addresses the way it is delivered. Participant responsiveness emphasizes engagement while program differentiation focuses on the distinct program features (Dane & Schneider, 1998; Dusenbury et al., 2003; Dusenbury et al., 2005; Pérez et al., 2016). Carroll et al. (2007) acknowledged the difficulty of fully implementing programs as intended in a real-world setting and even proposed identifying essential program components to define adaptation parameters. However, the initially presented framework did not provide a means for identifying those critical components (Pérez et al., 2016).

The modified implementation fidelity framework incorporated two additional moderators, including the setting or context of a specific moderator and participant recruitment (Pérez et al., 2016). Adaptive interventions result from changes to the program’s original design. According to Pérez et al. (2016), “in practice, the adaptation of interventions has been the rule rather than the exception” (p. 2). The modified implementation fidelity framework was used in the current study to allow room for program changes that either contributed to its improved effectiveness or, at the very least, did not diminish its success. Thus, the adapted conceptual framework allows for

evaluating program-specific moderating factors (Pérez et al., 2016) rather than focusing solely on the five dimensions proposed by Carroll et al.'s (2007) framework.

Legislative guidelines mandate advisory committees' involvement in the creation and management of CTE programs (U.S. Department of Education, 2007). Their involvement must ensure the design and implementation of quality CTE programs; therefore, the committee's involvement is also critical. When CTE programs fail to produce the desired outcomes, such as increased high school graduation and college degree attainment rates, decreased dropout rates, and higher earning potential for students, policymakers may question its effectiveness. However, research reveals the lack of effectiveness in education programs and reforms may result from poor implementation (Kovaleski et al., 1999; Levin et al., 2010). Thus, evaluating implementation fidelity is essential to understand how well the advisory committees' role adheres to legislative requirements.

The balancing act between evidence-based practices and the implementation of "real-world" programs often challenge researchers. CTE programs are complex interventions; however, Bragstad et al. (2019) argued the complexity of such interventions "lies not only within the several interacting components within the intervention itself but also in the way these components may interact with the context during intervention delivery" (p. 2). So, advisory committees' design and level of involvement in the implementation process could impact CTE programs and their effectiveness.

Research Design

A qualitative, multiple-case study design was employed in the current study. The purpose of this study was to understand better the perceived role of advisory committees in the implementation and ongoing oversight of CTE programs and the perceived effectiveness of CTE programs on education outcomes and related employment opportunities for its participants. Based on the fidelity of implementation conceptual framework, this researcher explored the perceptions of advisory committee members, CTE administrators, and CTE educators on the effectiveness of their school's CTE program and the level of adherence of their program to Perkins V legislative requirements.

This qualitative, multiple-case study bound participants based on their involvement in CTE programs. This study is also limited to public ISDs located in Central Texas. The researcher used random purposive sampling to select the participants. The participants identified as having relevant knowledge of the CTE programs were one advisory committee member, the CTE administrator, and one CTE instructor for each case. Due to the complex structure for one of the district's CTE program, the researcher interviewed three additional participants. The researcher collected data using semi-structured interviews to understand better the roles and responsibilities related to CTE programs for each participant. The purpose of this study was to understand better the perceived role of advisory committees in the implementation and ongoing oversight of CTE programs and the perceived effectiveness of CTE programs on education outcomes and related employment opportunities for its participants. The researcher used the spiral

concept to narrow the collected data into manageable pieces and then grouped them into categories of related themes.

Definition of Key Terms

Career and Technical Education: Defined by the Carl D. Perkins Career and Technical Education Act of 2006 (2018) as

organized educational activities that— (A) offer a sequence of courses that— (i) provides individuals with rigorous academic content and relevant technical knowledge and skills needed to prepare for further education and careers in current or emerging professions, which may include high-skill, high-wage, or in-demand industry sectors or occupations;

(ii) provides technical skill proficiency or a recognized postsecondary credential, which may include an industry-recognized credential, a certificate, or an associate degree;

(B) include competency-based, work-based, or other applied learning that supports the development of academic knowledge, higher-order reasoning and problem solving skills, work attitudes, employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of an industry. (Sec. 3, (5) Career and Technical Education)

Career Course: According to Association for Career and Technical Education (n.d.),

career courses are typically offered to junior high school students using an age-appropriate, theme-oriented curriculum that guides students in their career exploration efforts.

Employment Outcomes: For purposes of this study, employment outcomes are defined as attaining employment after the early career exploration program.

Magnet Schools: Magnet schools are a public school alternative to a traditional school that offers highly specialized educational curricula based on themes for a particular career pathway or specific area of interest such as the arts (Public School Review, 2019).

Perkins Funds: Perkins funds are the federal monies approved by Congress and distributed to the states to fund CTE programs (U.S. Department of Education, 2018).

Post-Secondary Outcomes: For purposes of this study, post-secondary outcomes are defined as graduating from college or a post-secondary degree-granting program.

Simulated Career Exploration: Simulated career exploration is an immersive, career-themed experience—offered in a protected setting at an educational institution—that replicates workplace tools, processes, and environments to offer students realistic hands-on opportunities to practice, reinforce, and grow the technical skills, employability skills, and academic knowledge learned through classroom instruction. (Moyer et al., 2017, p. xi)

Vocational Education: Vocational education describes programs designed to provide essential training and skills for the purpose of attaining certain qualifications and technical knowledge necessary for a particular job or profession (Kotsikis, 2007).

Conclusion

As the shortage of skilled workers continues to grow and the amount of federal funding supporting CTE programs increases, there is a need to understand the implementation fidelity of the various components that collectively constitute a CTE program. Currently, a gap in the literature exists related to the implementation fidelity of CTE programs and their adherence to funding policies and associated legislative requirements. The researcher sought to understand advisory committees and their role in CTE programs. Chapter Two presents the literature review, where the researcher took a high-level assessment of the United States' future employment trends, traced the history of education and policy practices related to CTE programs, examined current career exploration efforts, explored the impact of CTE programs, discussed the value of advisory committees in CTE programs, and evaluated the use of implementation fidelity.

CHAPTER TWO

Literature Review

Introduction

The strength of America's economic future is in part contingent on its education systems and their ability to develop and prepare a skilled, qualified workforce to meet anticipated employment demands (Berger & Fisher, 2013). CTE programs have emerged as a viable source for bridging the gap between employment demands and the educated workforce necessary to reduce the projected worker shortage. While federal law mandates the formation and use of advisory committees to aid in the implementation of CTE programs, assessing the implementation fidelity of such programs can determine the real impact of CTE and determine whether these programs can be relied on to reduce the educated worker shortage (Hudson et al., 2019).

The argument that necessitates evaluating implementation fidelity of CTE programs, particularly advisory committees, is presented in six sections. First, the literature review includes an overview of future employment trends to demonstrate the need for a more skilled, educated workforce. Second, the historical perspective of CTE education to understand better how legislative policies for the programs evolved is traced. Third, current career exploration efforts and analyzes why these programs are insufficient to address future economic demands are explored. Fourth, the impact of CTE programs on academic, post-secondary, and employment outcomes is discussed. Fifth, the role of advisory committees in CTE programs is examined. Finally, the importance of studying

implementation fidelity to understand the outcome of research on CTE programs better and ensure the successful attainment of program goals and objectives is argued.

United States Economic Outlook

Studies show there is a strong correlation between educational attainment and economic prosperity. States with greater high school and college degree attainment rates experience positive economic growth (Berger & Fisher, 2013). Advancements in technology and increased global competition dictate what type and how much education is required to achieve employment security. Economic analysts report the demand for skilled workers will increase while the pool of qualified applicants will stagnate and deteriorate in some industries (Carnevale et al., 2013). The Association for Career and Technical Education (2006) reported, “Many experts predict that this problem will only grow more acute as the Baby Boomer generation reaches retirement” (p. 3). Studies also show that by 2025, the United States will face a shortage of 23 million post-secondary credentialed workers (Carnevale et al., 2013). In the literature in this section, the researcher assesses future U.S. employment trends, explores future occupational predictions, and analyzes future employee preparedness suggesting the gap between future employer demands and the growing pool of unskilled workers is widening.

Future U.S. Employment Trends

Projections of future employment demands reflect a critical need for a more skilled, educated workforce. This increased demand has intensified the focus on college and career readiness for students to ensure these anticipated jobs are promptly filled. According to Martinez et al. (2017), 62% of the jobs posted in the United States required

a college education in 2018. Projections suggest the United States is unprepared to meet future employment demands currently facing an anticipated shortage of as many as five million college-educated adults in 2020, increasing to 23 million by 2025 (Carnevale et al., 2013).

In 1973, of the 91 million workers reported, 28% required post-secondary education (see Figure 1). Carnevale et al. (2013) said by 2020, 65% of the estimated 164 million workers would require some post-secondary education. The percentage of jobs requiring a high school diploma or less decreased from 72% in 1973 to 36% anticipated by 2020 (U.S. Bureau of Labor Statistics, 2018).

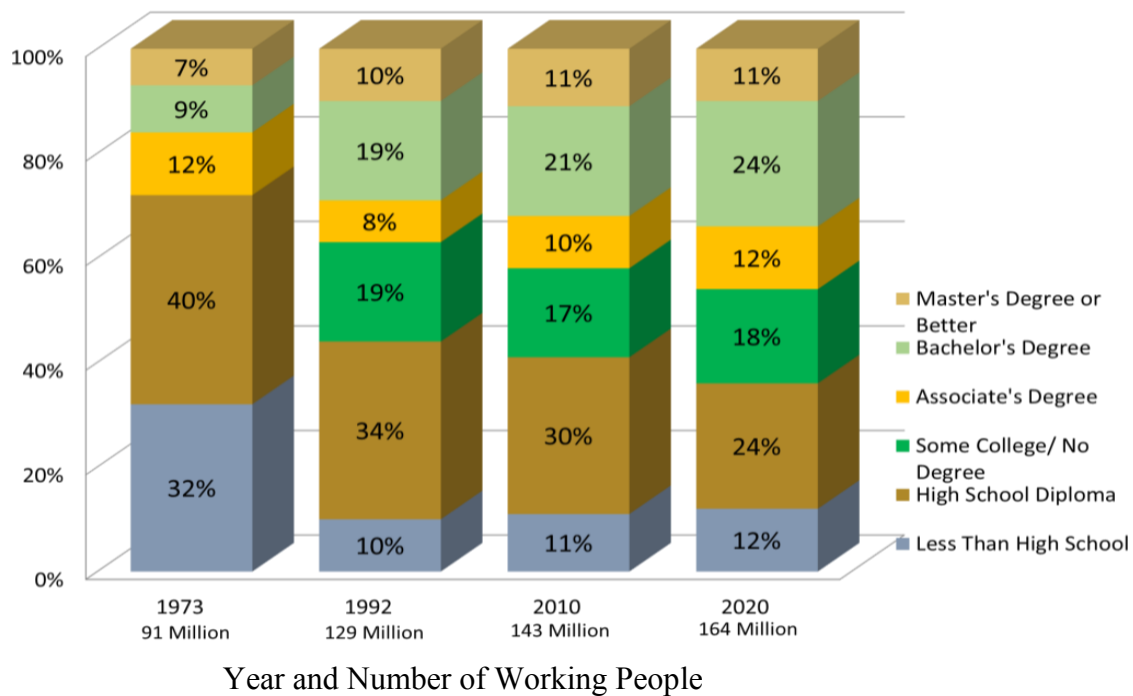


Figure 1. Review of jobs requiring postsecondary education from 1973 to 2020.

Note. Reprinted from “Recovery: Job Growth and Education Requirements Through 2020,” by A. P. Carnevale, N. Smith, and J. Strohl, 2013, p. 15. In the public domain.

Amelga (2012) with the National High School Center at the American Institutes for Research reported the number of middle and high school students who expressed an interest in pursuing a college degree increased from 67% to 75% from 1997 to 2010. For that same period, the number of Americans between the ages of 25 to 29 that received a degree increased slightly from 28% to 32% (Snyder & Dillow, 2011). Between 2000 and 2017, a similar study revealed high school diploma attainment increased from 88% to 92%, and the number of those receiving a bachelor's degree gradually increased from 29% to 36% (Snyder & Dillow, 2019). While both high school and college-level degree attainment are on the rise, there is still a significant gap in the number of students pursuing a college degree and the number of skilled, educated workers required to meet future employment demands. This data is especially problematic for job seekers in the United States. Current research suggests 65% of all jobs and 90% of new jobs with higher earning potential will require some level of post-secondary education (Carnevale et al., 2013).

According to the U.S. Bureau of Labor Statistics (2019b), workers who learn more increase their potential to earn more. Those attaining doctoral and professional degrees earned more than three times individuals with less than a high school degree and two and half times those with a high school diploma (see Figure 2). This figure also shows the unemployment rate and degree attainment are negatively correlated. As degree attainment increases, the unemployment rate decreases. The unemployment rate reported in 2019 for individuals with a high school diploma was 3.7% and 5.4% for individuals with less than a high school diploma (U.S. Bureau of Labor Statistics, 2019b). The

unemployment rate for these groups expected to increase as demand for more skilled, educated workers increases.

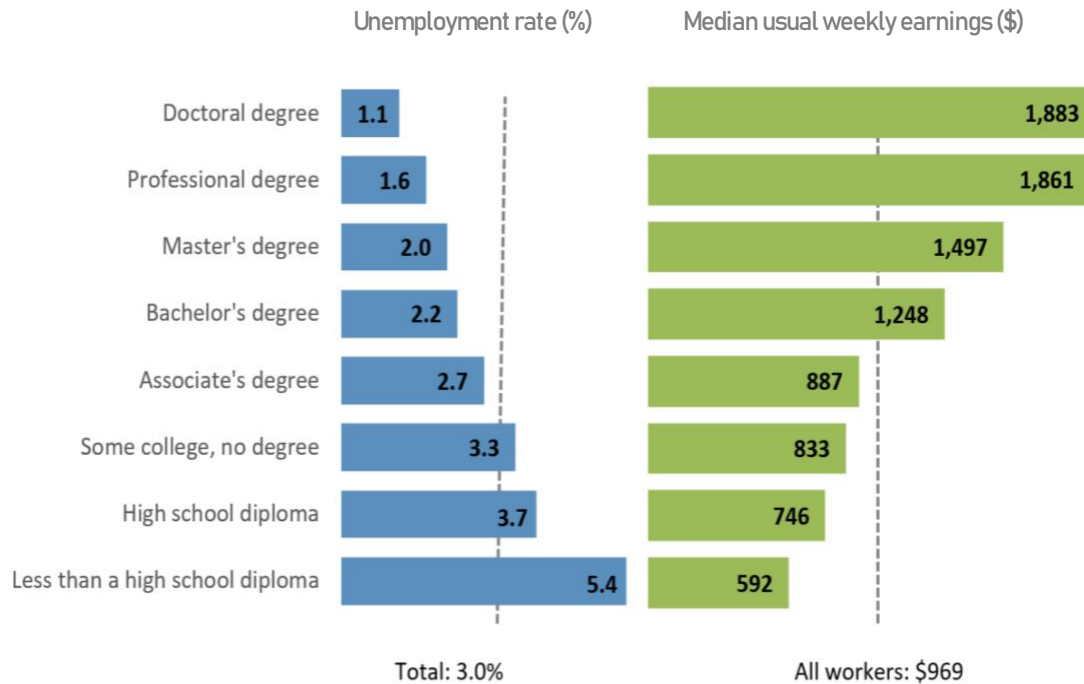


Figure 2. Analysis of unemployment rates and educational attainment reported in 2019.

Note. Reprinted from “Employment Projections: Unemployment Rates and Earnings by Educational Attainment,” by U.S. Bureau of Labor Statistics, 2019b, p. 1 (<https://www.bls.gov/emp/chart-unemployment-earnings-education.htm>). In the public domain.

Future Occupational Predictions

In the January 30, 2018 reissue of employment projections for 2016–2026, the U.S. Bureau of Labor Statistics (2018) reported entry into 18 out of the 30 fastest-growing occupations will require post-secondary education. With an anticipated expansion of almost five million new jobs by 2026, the health care sector, along with social assistance fields, will represent one-third of the growth in all job categories.

Five out of the top 10 fastest-growing occupations will be in healthcare (see Figure 3). This growth is primarily due to the services that will be necessary to care for the aging population, a demographic expected to grow to 24.8% by 2026, up from the 16.8% reported in 2006 (U.S. Bureau of Labor Statistics, 2018). While analysts expect the number of new jobs in the healthcare industry to grow significantly within the next 5 years, individuals with a high school diploma or equivalent are in lower-wage earning positions. The U.S. Bureau of Labor Statistics (2018) expects the number of new openings for personal care aides to exceed 400,000; however, the median wage reported for this position in 2018 was \$24,020 per year (see Figure 4). The same report anticipates that the number of new jobs for customer service representatives to be close to 373,500, with a median wage of \$32,300 per year (U.S. Bureau of Labor Statistics, 2018). The growing demand for a more educated, skilled workforce has increased concerns about preparedness for future workers. The next section will preview the readiness of the future workforce.

Future Employee Preparedness

During the post-World War II era, American workers with a high school diploma or less could attain blue-collar jobs that paid middle-class wages. These working-class jobs were primarily in industries such as manufacturing. These industries employed countless high school-educated workers. However, globalization and advancements in technology have contributed to significant structural changes in the American economy that now requires more educated workers with higher skill levels.

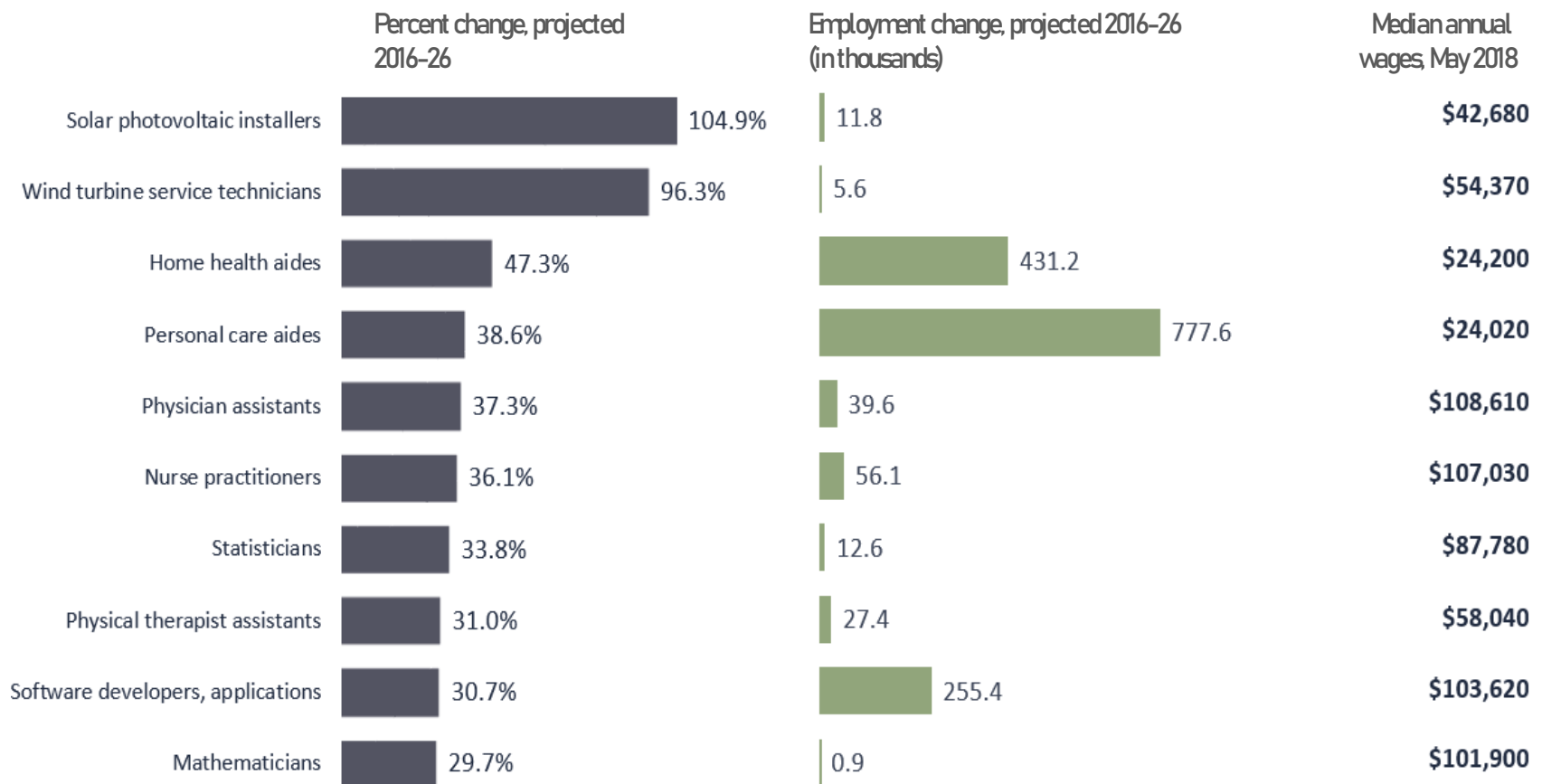


Figure 3. Review of the top 10 fastest growing occupations reported in 2018.

Note. Reprinted from “Employment Projections,” by U.S. Bureau of Labor Statistics, 2019a, p. 1 (<https://www.bls.gov/emp/>). In the public domain.

Annual rate of change for wage and salary employment, projected 2016–26

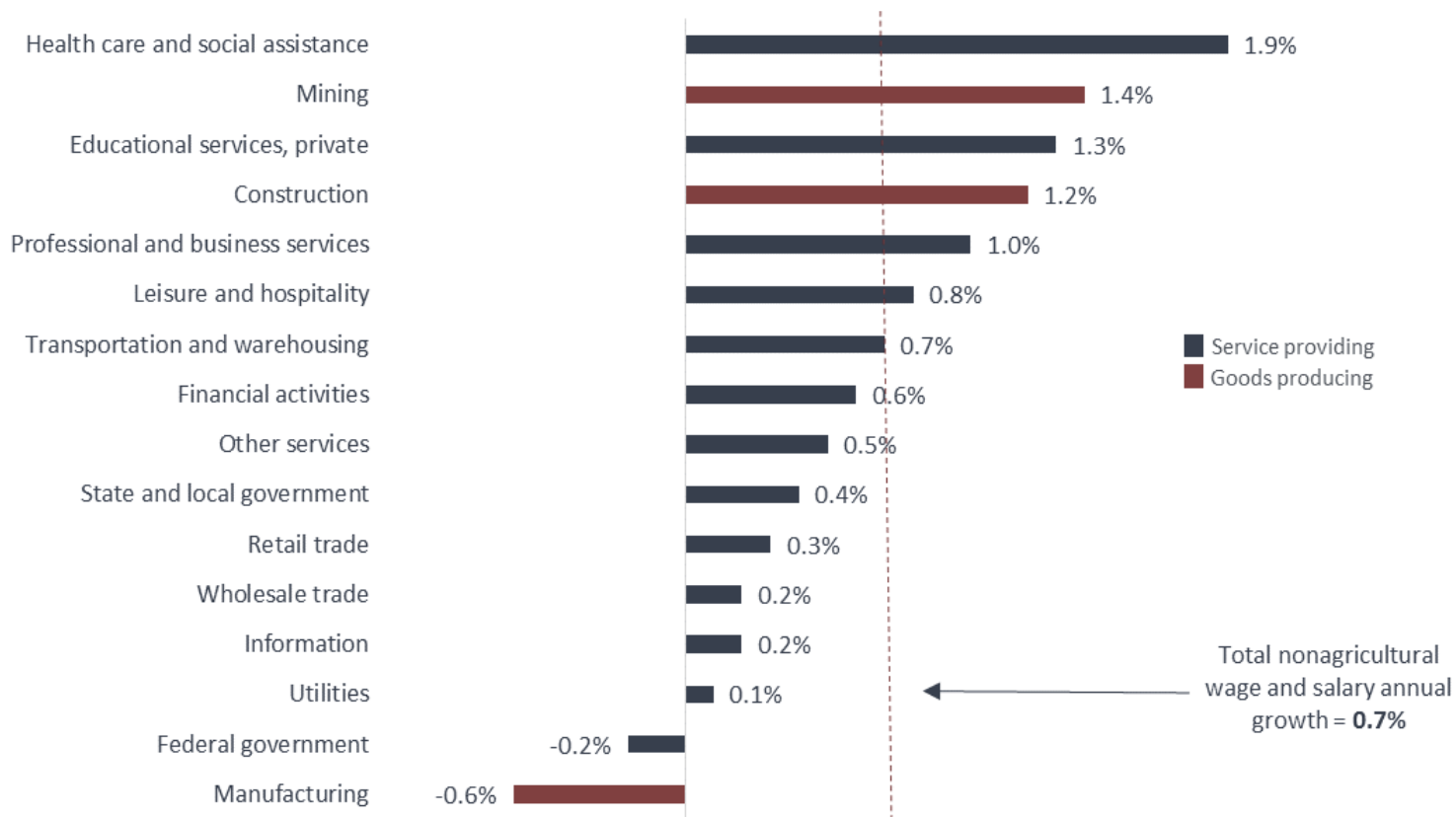


Figure 4. Review projected wage and salary change by industry reported in 2018.

Note. Reprinted from “Employment Projections,” by U.S. Bureau of Labor Statistics, 2019a, p. 1 (<https://www.bls.gov/emp/>). In the public domain.

“Whereas two out of three entry-level jobs in the industrial economy demanded a high school diploma or less, now two out of three jobs demand at least some education or training beyond high school” (Carnevale et al., 2018, p. 1). Though a college degree carries a fraction of leverage, in reality, today’s employers explicitly prefer technical proficiency supported by certifications in that field. Employers want to ensure the employee can effectively do their job with minimal errors and oversight.

Burning Glass, a firm specializing in workforce analytics, analyzed millions of job ads (Selingo, 2016). They noted that position postings requiring a bachelor’s degree also desired soft skills, permitting enhanced interpersonal dynamics. So, while a degree may be adequate to obtain a job interview, it may not be sufficient to secure the position. Given the demand for higher-level skills and the ambiguity surrounding post-secondary degree attainment, many young people fail to identify a clear path to a career. A survey conducted of 752 college graduates between the ages of 24–27 revealed that two-thirds of the respondents struggled to launch their careers following their college graduation (Selingo, 2016).

Summary of Economic Outlook

Despite progress in educational systems, studies indicate that qualified employee shortages persist. Before the 21st century, the exercise of graduating from high school created pathways to successful careers. However, changes in the job market to adapt to technological advancements have increased pressure on educational systems to produce more highly-qualified workers. Given that the current educational format has not provided enough skilled workers to meet future employment demands, some

considerations must extend to the historical timeline contributing to the current educational dilemma.

Historical Perspective of Education and Related Policies

Advisory committees' involvement in shaping vocational education legislative policy has pervaded government ranks, including national, state, and local levels (Corley, 1988). The Vocational Education Act of 1963 mandated the National Advisory Council, the 1968 amendment to that act required state advisory councils, and the 1976 amendment authorized local committees. The Carl Perkins Act of 1984 and its multiple revised and reauthorized versions, namely the April 19, 2012 reauthorization of Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV; 2018), enhanced advisory committee involvement, specifying who should be included and describing proposed roles and responsibilities.

The current state of public education is, in many ways, a byproduct of its origin. Public education is defined as a “federally funded school, administered to some extent by the government, and charged with educating all citizens” (Chen, 2018, p. 2). Many would argue that the intent of public education, generally speaking, is to propel society forward. Kober (2007), a freelance writer and consultant to the Center on Education Policy stated,

From the early days of the nation, public education has played a vital role in American democratic society. In addition to preparing young people for productive work and fulfilling lives, the education system has also been expected to accomplish specific collective missions to promote the common good. (p. 1)

Many regard education as a way to elevate the citizenry and improve functional vocational adeptness. Educational institutions served as the gateway to future occupational prospects. Despite these ambitious goals, the National Commission on

Excellence in Education (1983) revealed the United States academic institutions' failed efforts and the urgent need for educational reform in the release of its report, *A Nation at Risk*. The renewed commitment to educational excellence served as a foundation for future policy implementation (Kober, 2007).

School-to-Work Opportunities Act of 1994

Congress enacted legislative policies to address its failing education system (Kober, 2007; Plank, 2001). They were motivated, in part, by several factors, including concerns of the United States losing its dominant position in the global economy, increasing high school dropout rates, and declining enrollment in vocational programs (Kazis & Pennington, 1999). In 1994, Congress passed the School-to-Work Opportunities Act of 1994, creating the School-to-Work (STW) program and making funds available to help schools improve academic outcomes (Kober, 2007). Policymakers intended for this federal program to improve educational outcomes by increasing student engagement, high school retention, and graduation rates. This policy also required states to build partnerships with businesses and the local community to develop a combined curriculum that included academic requirements and work-based learning opportunities (Plank, 2001). Legislators saw this collaborative effort as a chance to prepare young people to continue to higher education or to attain quality employment upon graduation (Wilson & Wilson, 2001).

The STW program initiative received mixed reviews (Kober, 2007). Research on the program's effectiveness revealed that student participation in the STW program did lead to improved attendance and retention rates and increased graduation rates. Studies showed the STW program prepared participants for college or employment following

high school graduation (Hughes et al., 2001; Kazis & Pennington, 1999). However, similar studies revealed one of the significant factors contributing to the varied results of the program's effectiveness was schools' failure or inability to provide work-based learning opportunities for program participants to apply their knowledge in a work-based setting.

According to Kiser (1999), a "majority of school to work activities taking place in the 34 states involved workplace visits, job shadowing, and teaching students about careers" (p. 48). Medrich et al. (2000) reported 78% of schools implementing STW strategies offered work-related curriculum, not experiences, while 67% of schools provided curriculums that incorporated academic and vocational activities but in a school-based learning environment. A 1998 survey of high school seniors revealed only 3% of students participating in STW programs experienced activities that combined academics with work-based learning opportunities (Kiser, 1999). While the STW program results showed the ability of such programs to improve education outcomes and employment opportunities, they also revealed the critical need for advisory committee involvement and a strong desire to evaluate those programs' implementation fidelity (Brown, 2002).

Carl D. Perkins Legislative Acts (2018 Perkins V Reauthorization)

Significant shifts in federal funding were most evident by the series of legislative acts named for the U.S. House of Representative member, Carl. D. Perkins (Threeton, 2007). Congress passed the first of the Carl D. Perkins Acts in 1984, honoring the life and legacy of Representative Perkins by approving federal funding for vocational education programs. The legislation's goals were to improve students' opportunities to

participate in vocational education and training programs, improve access, and increase the types of services available for special needs students (Threton, 2007).

The Perkins legislation has transformed over time with reauthorizations in 1990, 1998, and a significant restructuring occurring with infusing academic rigors into technical curriculums initiated with the Carl D. Perkins Vocational Education Act IV of 2006 (Threton, 2007). The Act created CTE programs. This Act also identified 16 broad sectors or clusters representing the majority of the United States' careers as a basis for the development and implementation of work-based learning experiences. The most recent reauthorization, Perkins V, occurring July 31, 2018, increased federal funding to allow for increased participation, shifted much of the control for the administration of the program from federal agencies to state and local governing bodies, and required the involvement of advisory committees to ensure program relevancy (U. S. Department of Education, 2018).

With the recent reauthorization, Perkins V legislative requirements increased focus on many critical areas. According to the Texas Education Agency (2020c), Perkins V emphasized the following areas:

1. Align CTE programs with local community needs, focusing on high-wage, in-demand jobs.
2. Increase emphasis on industry-based credentials.
3. Expand programs to rural and suburban communities.
4. Engage diverse groups of community partners and improve collaboration across sectors.
5. Ensure equitable access for special populations.

Policy advocates argued that the increased focus on these areas contributed to improved education outcomes and better-prepared students for high-wage, in-demand career opportunities when properly implemented.

Summary of Historical Perspective

Despite improvements in the traditional curriculum, changes in the compulsory public education system have not adapted to meet the forecasted uptick in technologically-driven fields. During his infamous inaugural speech on January 20, 1961, President John F. Kennedy issued a challenge to the American public, “Ask not what your country can do for you, ask what you can, do for your country” (Clarke, 2004, p. xvi). President Kennedy’s challenge is as relevant today as when he first issued it 60 years ago. The time has passed to place impossible demands on public schools and unyielding expectations solely on the American education system to cure the college-educated worker shortage. The anticipated educated-worker shortage is a national issue that requires federal resources and collective, comprehensive interventions. The following discussion examines different efforts underway to improve employment outcomes.

Current Career Exploration Efforts

There is much debate regarding the current state of America’s education system. Some argue the current “factory-model” system is outdated and unprepared to meet the country’s anticipated employment needs (Darling-Hammond, 2006, p. 302). Despite its challenges, America’s education system is an indispensable institution whose objectives include developing civic-minded citizens, nurturing individual talents, and improving labor-market skills to promote economic stability. Developing quality education-related

interventions that appeal to diverse learners in different learning environments is a lofty goal for secondary education institutions. Developing educated-related interventions that teach learners critical knowledge and career skills to be competitive in a global economy is an even more significant undertaking.

Some would argue that it is difficult for young people to dream big and aspire to careers they do not know exist. Several alternatives and differentiated strategies have engaged young people in career exploration and prepare them for their futures (Hwang, 2016). The policies that have led to improved educational outcomes created a stronger orientation toward work, increased awareness of career choice, and enhanced employment opportunities (Hughes et al., 2001; Kazis & Pennington, 1999; Threton, 2006). While reviewing and assessing current exploration efforts, the researcher explored the impact of contemporary interventions such as career day, career courses, career academies, magnet schools, and work-based learning institutions on academic, post-secondary, and employment outcomes.

Career Day

In a traditional sense, career day is a one-day collaboration typically occurring in elementary school and involving a school and its local community. The goal of career day is to increase career awareness and help students make a meaningful connection between their academics and future aspirations (Brown-Huston & Wilkerson, 2014). Schools invite members of the community to share their careers. School coordinators typically send out letters to parents and local professionals asking for volunteers to participate. The focus is often to represent a variety of careers. Presenters bring items related to their area of expertise and offer demonstrations designed to engage students

and allow them to participate in hands-on activities. While there are many potential careers, some of the more common career day participants include local fire and police departments. These organizations' representatives often showcase their professional vehicles, such as the flaming-red fire truck or the new state-of-the-art police car (Balfanz et al., 2007).

Schools typically offer career day to elementary and junior high students (Balfanz et al., 2007). If the entire school participates, guests may present in a classroom or a larger room, such as the school's gym or cafeteria. Students are allowed to explore different areas. The students are encouraged to rotate based on some prescribed time, such as 30-minute intervals, to enable time to visit as many stations as possible.

The benefits of career day include early exposure for participants and the opportunity to learn about current careers (Balfanz et al., 2007; Brown-Huston & Wilkerson, 2014). While career day offers early intervention and encourages students to begin thinking about jobs and their future, all the activities occur on a single day. Career day does not provide ongoing instruction. All events occurring on a single day limit its ability to engage students long-term and limit their impact on post-secondary and employment outcomes.

Career Course

In some instances, schools offer individual courses in career exploration to junior high school students. Career courses offer age-appropriate, theme-oriented curricula that guide students in their career exploration efforts (Learning for Life, 2017). First-year high school students must declare a track or select an endorsement that will identify their educational path and determine the courses they will take throughout their high school

experience. Requiring students to enroll in junior high in career courses enables them to make a more informed decision regarding their high school track or endorsement.

Studies show that career courses offer more instruction than a career day. This additional instruction increases student awareness of current careers. These courses also allow students to learn more technical skills that improve employability (Association for Career and Technical Education, n.d.). However, the impact on post-secondary and employment outcomes is limited and considered low to moderate. The focus on current careers does not prepare students for changing workforce demands.

Career Academies

According to Kemple and Snipes (2000), career academies are school-to-career based programs first implemented over 30 years ago that are typically offered to students entering the ninth grade. Research shows career academies improve student engagement and increase retention rates. These small learning communities incorporate academic and technical curricula into career theme-based programs. These programs, such as healthcare, hospitality, or automotive, provide participants with the knowledge, skills, and credentials necessary to transition to gainful employment successfully (Kemple & Snipes, 2000).

Career academies have proven to increase student engagement and reduce dropout rates significantly (Kemple & Snipes, 2000). Per Kemple and Snipes (2000), research shows that students who enroll and complete two or three career or technical courses have a greater probability of graduating on time from high school than their peers. However, these statistics do not necessarily mean that those students are more likely to enroll in college. Many career academies have focused technical curricula that prepare

students for immediate employment but do not provide well-rounded instruction that would serve a student well should their profession become obsolete (Kemple & Snipes, 2000).

Magnet Schools

As an alternative to a traditional school, magnet schools offer highly specialized educational curricula that “. . . emphasize[s] an area of study or a method of teaching” (Teach.com, 2021, para. 3). Magnet schools’ specialized focus on different subject matters, such as math or science, tends to draw students who excel in that particular discipline. These schools attract some of the best and brightest students. As a result, acceptance into these schools is highly competitive, with most relying on lottery systems to enroll 10–20% from the distinguished pool of interested applicants (Teach.com, 2021).

A study conducted by Silver et al. (2008) attempted to determine whether the graduation rate was higher for students attending magnet high schools. This robust study used longitudinal data to analyze more than 48,000 Los Angeles Unified School District students. The results revealed 73% of students attending magnet schools graduated high school while only 45% of seniors attending non-magnet schools graduated (Silver et al., 2008). Silver et al. argued the theme-based nature of magnet schools contributed to higher student engagement and higher graduation rates. Magnet schools are highly competitive and attract high performing students that ensure high engagement and a high possibility of post-secondary attainment; however, enrollment is limited. Thus, only those fortunate few benefit from such programming (Kemple & Snipes, 2000).

Summary of Current Career Exploration Efforts

Success in secondary education is identified by completion and degree attainment rates; however, completing educational requirements and earning a high school diploma does not necessarily lead to a meaningful career path. Robinson and Aronica (2015) maintain the current high school education system initially designed to meet labor demands during the Industrial Revolution is dated and insufficient to meet future employment needs. They argue the characteristics employees will need to fill the educated-worker shortage include the ability to adapt to change and the creativity to generate new ideas to meet ever-changing needs, neither of which will result from chasing academic standards (Robinson & Aronica, 2015). Thus, the notion that education and its systems can eliminate the future employee shortage single-handedly is impractical, and career achievement is not a criterion for which success in school is currently measured (Kuh et al., 2006). Table 1 is a review of the current career exploration efforts.

Career and Technical Education

Despite improvements in instruction and increased demands for educational accountability, America's educational system cannot alone prepare young people to meet future employment demands (Robinson & Aronica, 2016). In response to the growing need for greater focus on career readiness and preparation, a series of legislative acts inspired by Carl D. Perkins and approved by Congress authorized federal funds for CTE and mandated the development of advisory committees. Figure 5 shows the quality components necessary for a CTE program.

Table 1

Review of Current Career Exploration Efforts

Career Effort	Outcomes	Impact on		
		Academic Outcomes	Post-Secondary Outcomes	Employment Outcomes
Career Day	Improves student engagement Introduces students to professionals Represents early intervention (primarily elementary)	Low to Moderate	Low to Moderate	Low
Career Class	Increases career awareness Intervention generally occurs at the junior high level Enables students to make more informed decisions with track or endorsement selections	High	Moderate	Low
Career Academies	Only participants benefit Generally, enrollment highest among at-risk students Career theme-based instruction Prepares participants for current careers Intervention occurs at the high school level	High	Low	Moderate
Magnet Schools	Only students accepted benefit Competitive enrollment, limited accessibility Career theme-based instruction Intervention occurs at the high school level	High	High	Moderate
Simulated Work-Based Learning	Enables students to gain necessary workforce skills Offers opportunities to engage with professionals in the desired field of study Prepares participants for current careers Intervention occurs at the high school level	High	High	Moderate

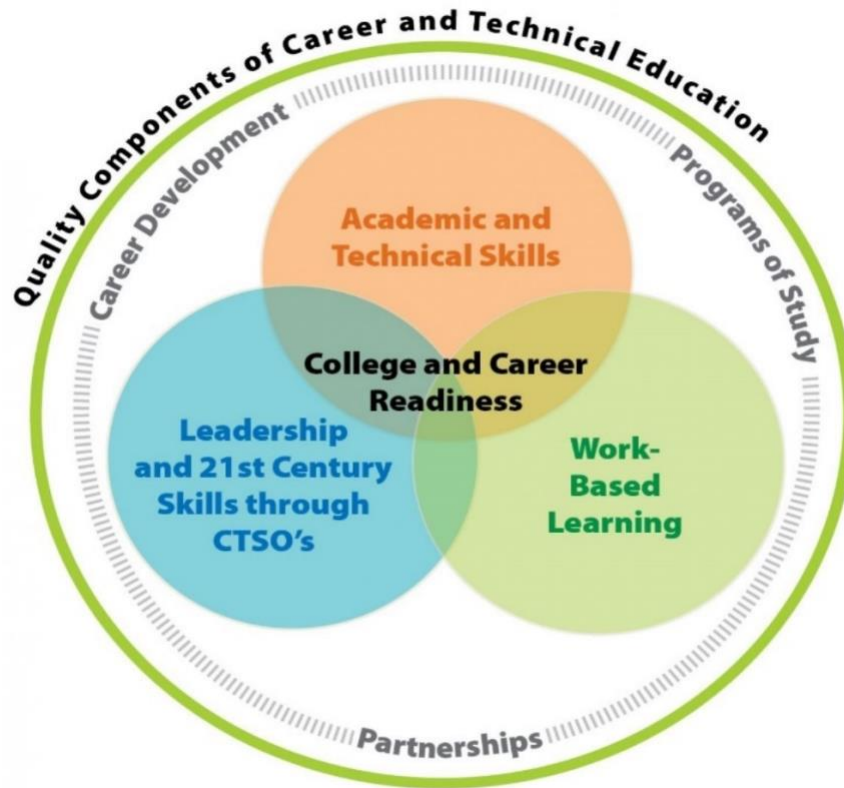


Figure 5. Components of career and technical education.

Note. Reprinted from “Tools to Promote Career and Technical Education,” by Wisconsin Department of Public Instruction, 2018, para. 1 (<https://dpi.wi.gov/bit/edbits/tools-promote-career-and-technical-education>). Reprinted with permission.

CTE programs have been around since the 1990s (Levesque et al., 2008).

Congress established these programs as vocational education with the primary purpose of developing skilled workers to fill blue-collar manufacturing jobs. The resurgence in interest and renewed focus created by the Perkins legislative acts, most recently the Carl D. Perkins V Act signed into law on July 31, 2018, transitioned funding focus from vocational training to career and technology programs (U.S. Department of Education, 2018).

Work-Based Learning Institutions

CTE employs work-based learning in its curriculum. Work-based learning (WBL) is an instructional approach that offers students the unique opportunity to “. . . apply technical skills and academic knowledge acquired in the classroom within a real business or industry setting” (Moyer et al., 2017, p. 52). WBL programs replicate the work-place setting, allowing them to immerse themselves into the career-themed curricula while offering a hands-on practical learning experience as shown in Figure 6.

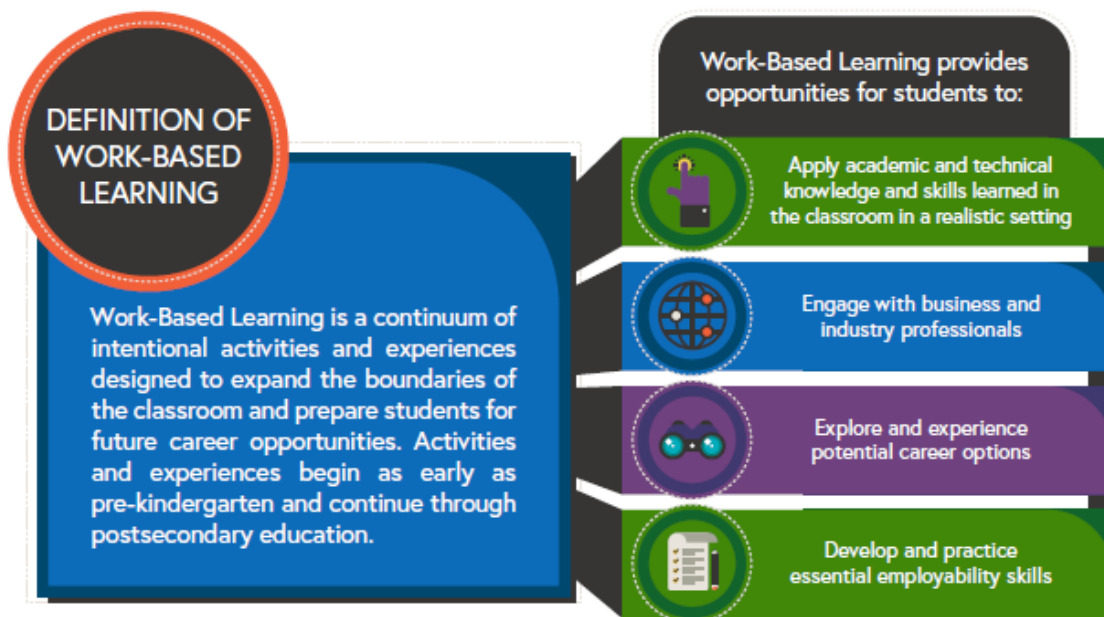


Figure 6. Work-based learning.

Note. Reprinted from “Texas State Plan for Strengthening Career and Technical Education for the 21st Century Act (Perkins V),” by Texas Education Agency, 2020c, p. 35 (<https://www.esc1.net/cms/lib/TZ21000366/Centricity/Domain/39/Texas%20Perkins%20V%20State%20Plan%20final%20April2020.pdf>). Reprinted with permission.

WBL provides hands-on, real-world experience for its participants. WBL also provides the highest level of impact on academic and post-secondary; however, given that it primarily focuses on simulated experiences for current employment opportunities

and is not projected to be available in the future, its impact on employment outcomes is moderate.

Summary of Career and Technical Education

CTE programs have experienced significant restructuring in recent years incorporating academic rigor in a highly technical curriculum delivered through hands-on, worked-based instruction. At the high school level, CTE participants can learn relevant skills and earn technical certifications. These programs prepare students for high-skilled, high-demand careers. CTE programs improve academic, post-secondary, and employment outcomes.

Advisory Committee Involvement

The primary impetus of federal and state legislative mandates for local advisory committee involvement in CTE programming is to engage community support in developing, implementing, and managing the CTE programs (Teitel, 1994). As such, advisory committees are challenged with providing guidance and insight to CTE administrators and instructors. Employer input must be an integral part of designing and updating the curriculum to ensure that students learn the most current skills.

However, “Despite all the emphasis and support for the formation and use of advisory councils, they have been less effective than one would hope. They frequently exist largely on paper and meet informally and irregularly if at all” (Office of the State Director 1987, as cited in Teitel, 1994, p. 21). According to Olfert (2000), CTE advisory committees have three primary functions. These committees provide knowledge and

expertise, support CTE administrators and instructors, and ensure the program's quality and relevancy.

Advisory committees ensure accountability and program relevance, and they also ensure efficient use of state, local, or federal funds (Dyer & Williams, 1991; Teitel, 1994). With the recent reauthorization of federal funds and the added mandate of advisory committee involvement, school districts have witnessed an increase in human, social, and financial capital available to help them achieve their CTE program's goals (TEA, 2020c). Teitel (1994) defined an advisory committee as "a group of volunteers that meets regularly on a long-term basis to provide advice and or support to an institution or one of its subunits" (p. iii). These advisory committees offer school districts an opportunity to collaborate with local and business communities.

Summary of Advisory Committee Involvement

The primary motivation of early federal and state legislation mandating the use of advisory committees in vocational and technical education was to assist program participants in being prepared to meet employment needs (Teitel, 1994). By the mid-1950s, advisory committees' focus expanded to include organized labor unions, who desired to investigate vocational education programs (King, 1960). Additional legislative acts increased focus and funding to developing CTE programs and reducing the anticipated worker shortage (Teitel, 1994). For programs, "particularly those that are publically funded, advisory committees are increasingly required for accountability or for relevance and to make sure programs meet the needs of target populations" (Teitel, 1994, p. 22). Advisory committees are an effective strategy for developing, implementing, and administering school initiated CTE programs.

Use of Implementation Fidelity

A significant challenge for schools implementing research-based education programs, such as CTE programs, was to ensure a high standard of fidelity in implementation as shown in Figure 7. During the early years of education-based program implementation, one presumed program implementation rates as prescribed (Durlak, 2011).

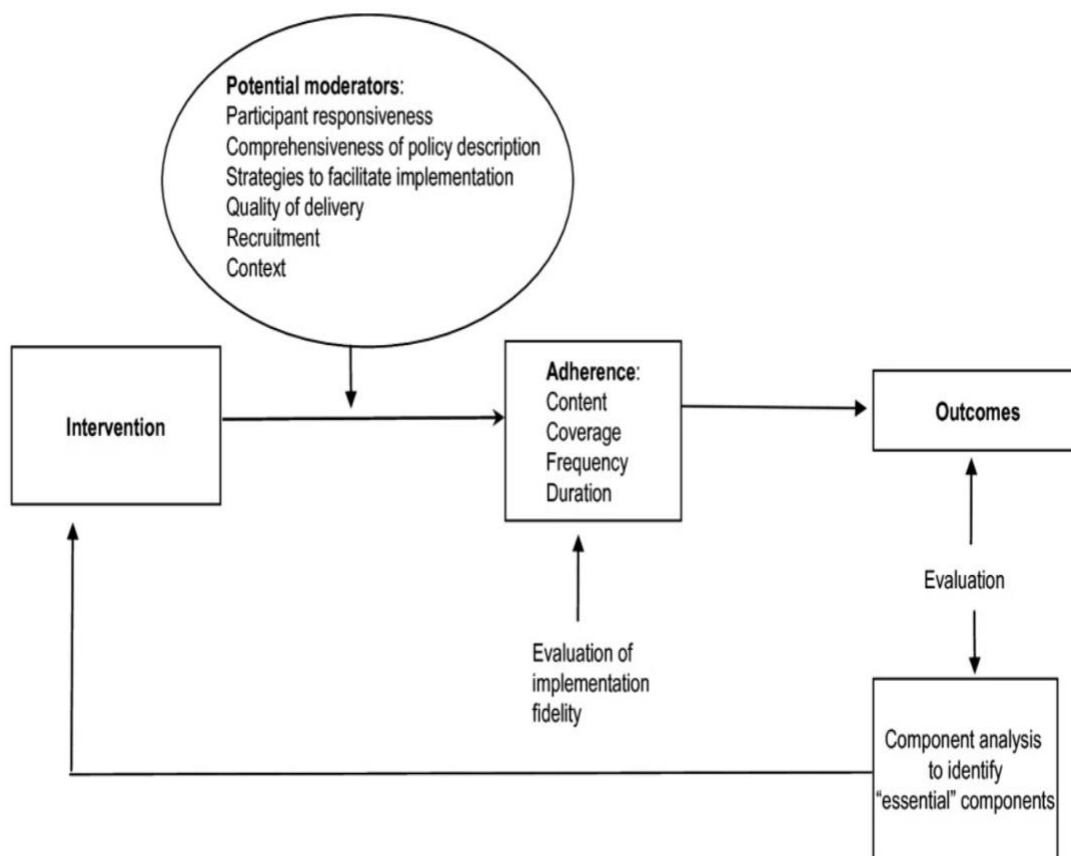


Figure 7. Conceptual framework for implementation fidelity.

Note. Reprinted from “A Conceptual Framework for Implementation Fidelity,” by C. Carroll, M. Patterson, S. Wood, J. Rick, and S. Balain, 2007. *Implementation Science*, 2(1), p. 4 (<https://doi.org/10.1186/1748-5908-2-40>). Reprinted with permission.

Generally speaking, the term fidelity refers to the degree of execution of a program or intervention according to its intended design (Durlak & DuPre, 2008;

Gottfredson & Gottfredson, 2002). The term implementation answers “how” behind program development and execution. In complex and multifaceted environments such as schools, strict adherence to evidence-based program designs is challenging to accomplish (Durlak & Dupre, 2008).

Providing innovative educational interventions involves significant financial investments. While multiple factors influence program development and execution, empirical evidence supports the argument that program implementation affects education-related programs’ outcomes (Durlak & DuPre, 2008; Gottfredson & Gottfredson, 2002). To accomplish desired program results, policymakers, researchers, and educators alike must understand the factors that lead to successful educational interventions and why others fail. As demands for a more skilled, educated workforce increase, it is imperative to develop a clear understanding of factors contributing to high-impact programs’ successful implementation (Domitrovich et al., 2008; Payne & Eckert, 2010).

Gottfredson and Gottfredson (2002) conducted a national study examining the significance of evaluating school-based programs’ implementation fidelity. The researchers examined a sample of 3,691 school-based prevention activities in the United States. Gottfredson and Gottfredson assessed the implementation quality of typical school-based prevention practices, compared program implementation with empirical research, and tested hypotheses on identified predictors of implementation quality. The findings of this extensive study generally revealed poor implementation quality of school-based prevention programs. In some instances, just one-fourth to one-half of the implemented programs aligned satisfactorily with research-based programs for certain

activities. Also, as few as 47% of programs studied continued for an appropriate amount of time sufficient to reap any significant benefit from the intervention. Gottfredson and Gottfredson also revealed interventions implemented in elementary schools or urban areas seemed to offer better quality programs than those in high school or rural areas. Understanding factors contributing to quality implementation of educational programs, Gottfredson and Gottfredson posit that better integration of the examined prevention activities into everyday school operations, greater involvement from community stakeholders, and strong organizational support along with expanded engagement in planning to determine what to implement improves the fidelity of implementation.

While Gottfredson and Gottfredson (2002) provided recommendations on improving the fidelity of implementation, Durlak and DuPre (2008) found positive results in programs implemented at 60% fidelity. They analyzed more than 500 qualitative and quantitative implementation studies of “prevention and health promotion programs for children and adolescents” (p. 329). These researchers sought to understand the impact of implementation on outcomes and identify factors that affect implementation. The study results revealed several notable findings. The research indicated, “Expecting perfect or near-perfect implementation is unrealistic” (Durlak & DuPre, 2008, p. 331). Not one study reviewed showed 100% implementation, and only a few studies reported greater than 80% implementation efforts. Despite less than perfect implementation rates, the study results frequently revealed positive program results for studies with 60% program implementation. Also, Durlak and DuPre found programs prudently implemented experience a mean effect sizes two to three times higher than poorly implemented

programs. Thus, sufficient evidence exists to support Durlak and DuPre’s argument that implementation matters.

With the rebirth and renewed commitment to CTE programs, school districts across the country have continued to evolve and expand their career pathway programs to better prepare students for college and careers. While CTE programs vary significantly from school to school, a 2020 brief from the National Center for Education Statistics revealed nearly 88% of American high school students graduating in 2013 received credit for at least one CTE course (Liu et al., 2020). The report also noted 20% of those students had at least three credits in a specific CTE subject area, and 38% had two credits. Research shows “students who take in-depth CTE coursework see academic and career-oriented benefits more consistently than other CTE students or similar students in non-CTE settings” (Kamin, 2018, para. 9). Extensive research evidence indicates that properly designed and implemented education-based programs positively impact participants. However, the real impact of CTE programs on academic, post-secondary, and employment outcomes has been challenging to assess.

Summary of Use of Implementation Fidelity

Lack of fidelity in implementation could cause a program to produce less efficient, less effective outcomes and produce results that vary significantly from those reported in the evidence-based research. Conversely, programs executed with a high degree of implementation fidelity contribute to better-quality research data and, most importantly, improved program results (Noell et al., 2002; Wilder et al., 2006). Therefore, evaluating implementation fidelity is essential to understand how well CTE

programs adhere to legislative requirements, particularly advisory committees' mandated involvement.

Conclusion

The forecast for future employment challenges paints a vivid picture of the woes projected to disrupt the United States economy. Economic analysts project an estimated shortage of 23 million skilled, educated workers by 2025. The inability of young people to make a meaningful connection between their academic pursuits in high school and their post-secondary aspirations impacts many potential workforce participants and the nation's economy.

Little research currently exists that explores the lived experiences of CTE advisory committee members. Understanding the implications of engaging the local and business communities to serve on advisory committees would provide some guidance on optimal career interventions necessary for reducing the anticipated educated-worker shortage. Thus, exploring the implementation fidelity of CTE programs, specifically the federally mandated involvement of advisory committees, could provide invaluable insight into such programs' true effectiveness. Effective career exploration interventions would not only fortify academic engagement but improve post-secondary degree attainment. Improving post-secondary degree attainment increases the number of educated, skilled workers.

CHAPTER THREE

Methodology

Introduction

The mounting pressure on America's education system to address the anticipated educated-worker shortage and the inability of its overburdened public school system to bridge the expanding divide has highlighted the need for CTE programs. Empirical evidence supports the need for CTE programs and reports on the positive impact that such programs have on improving student engagement, increasing the number of high schools graduation degrees, and reducing dropout rates (Alexander & Hirsh, 2012; Bakar et al., 2013; Bowers-Brown & Berry, 2005). However, few studies have explored the impact advisory committees have on CTE programs, education outcomes, and employment opportunities.

This qualitative research study was an examination of advisory committees' perceived role in the implementation and ongoing oversight of CTE programs offered by public ISDs. This researcher probed CTE advisory members, CTE administrators, and CTE instructors of four CTE programs in Central Texas to understand their perceived role in the programs. The researcher also explored the participants' perceived impact of advisory committees on CTE programs, education outcomes, and employment outcomes. Using a multiple-case study approach enabled the researcher to dissect the often complicated relationship between educational institutions and the business community.

Research Questions

This researcher sought to answer the central research question—What is the role of advisory committees in the implementation and ongoing oversight of CTE programs offered by Central Texas public independent school districts (ISD)? The four secondary questions posed for consideration included,

1. What do advisory committee members, CTE program administrators, and CTE instructors perceive is their role regarding their ISD's CTE programs?
2. What do advisory committee members, CTE program administrators, and CTE instructors believe about the effectiveness of their ISD's advisory committee in developing and implementing CTE programs?
3. How well do advisory committee members, CTE program administrators, and CTE instructors perceive their school's CTE program aligns with Perkins V legislative requirements?
4. What do advisory committee members, CTE program administrators, and CTE instructors believe about the effectiveness of their school's CTE program on education outcomes and employment opportunities?

The results of this study identified the impact of advisory committee involvement in developing and implementing CTE programs and the role of cooperative solutions on education outcomes and future employment opportunities.

Researcher Perspective

According to Creswell and Poth (2018), the qualitative research design process requires the researcher to become wholly engaged in their research. A researcher must fully understand all the experiences that provide insight into the study's culture, case, or subject (Creswell & Poth, 2018). This study was approached using an interpretive perspective, relying on semi-structured interviews and secondary data to identify and analyze themes that emerged from the research (Angen, 2000). "According to the interpretivist perspective, our interpretations of the world are shaped by our experiences,

and by the societies in which we live” (Bergin, 2018, p. 18). From the interpretivist perspective, the researcher sought to uncover different interpretations and understandings of the role advisory committees play in implementing and ongoing oversight of CTE programs.

In my professional role as the Director of Programming for the Brazos Education Foundation, I have had the privilege of working with young, driven, and ambitious scholars. The Foundation is a nonprofit organization supporting economically disadvantaged graduating high school seniors with scholarships, mentorship, and relevant training to improve their post-secondary educational pursuits. While most scholars successfully satisfied their academic requirements, many have changed their major at least once during their college career. In most cases, the change in major inflates the cost of pursuing their degree, increases the amount of student loan debt they incur, and extends the time it takes to achieve their academic goals.

In some cases, our scholars have stayed the course and successfully graduated from college only to find that the enthusiasm they once held while pursuing their academic interests did not carry over to their career choice. These students have cited a disconnection between their academic pursuit and their vocational selection. Subsequently, many find themselves working jobs that are unrelated to their college degrees but often do not justify the cost previously incurred to attain them. Thus, it is important to explore opportunities to prepare young people for future career paths before they incur unnecessary debt to follow them for a significant portion of their lives. My role as a director allows me to observe the struggle that many young people engage in to identify possible career paths. Many of them become discouraged and express feelings of

hopelessness in finding a suitable career. My goal is to use this research to advocate for increased community involvement and more collaborative opportunities to engage business partners in CTE programs.

From a personal perspective, I am a proponent of career technical education and an advocate for work-based learning experiences. As the parent of a teenage son who struggles with the daunting task of determining what he wants to be when he grows up, I believe work-based learning experiences are essential to bridging the divide that often exists between academic curriculums and career pathways. While some career exploration is undoubtedly better than none at all, the career exploration course my son took in eighth grade only allowed students the opportunity to conduct internet searches to learn more about their career interests. There were no opportunities to engage with industry professionals or participate in work-based learning experiences to give students a better idea of their desired careers. I firmly believe that work-based learning is essential to inform young people about possible career paths and provide opportunities for them to make meaningful connections between their education and future career aspirations.

While many factors influence individual career choices, work-based learning experiences provide meaningful opportunities for young people to identify potential career pathways. From a personal standpoint, I believe work-based learning experiences would provide my son and his peers with the necessary information to make informed decisions about their futures. From a professional perspective, I believe work-based learning experiences could ultimately reduce the number of scholars selected by the Foundation that struggle with choosing a career path to pursue and reduce the amount of education-related debt they incur in their quest.

Since I live and work within Central Texas, I am particularly interested in understanding how to improve accessibility to work-based learning experiences for students within my community. All the participants selected for this multiple-case study were from public independent school districts within Central Texas.

Theoretical Framework

The purpose of this study was to understand better the perceived role of advisory committees in the implementation and ongoing oversight of CTE programs and the perceived effectiveness of CTE programs on education outcomes and related employment opportunities for its participants. This researcher also sought to explore each participant's perceived impact of CTE programs on education outcomes and employment opportunities. Carroll et al.'s (2007) modified conceptual framework for implementation fidelity informed this qualitative research study.

The modified implementation fidelity conceptual framework guided this study's research questions. The implementation of fidelity underpinnings also applied to this study's data collection protocols. Instead of using a multidimensional attitude scale to assess involvement, this researcher asked participants their perceptions of their roles, observations of their advisory committee's effectiveness, and insight in how well the committee's functions and the CTE programs their district offers aligned with Perkins V legislative requirements. Additional questions assessed their beliefs about how their school's CTE programs affect education outcomes and employment opportunities.

The seven dimensions of the modified implementation of fidelity framework guided the interview questions. The original five dimensions of the implementation of fidelity framework include adherence, dose, quality of delivery, participant

responsiveness, and program differentiation. The modified framework incorporated two additional moderators including the setting or context of a specific moderator and participant recruitment. The researcher explored perceptions by asking participants to identify factors that impact both the success and challenges of their CTE program's outcomes. The researcher embedded inquiries about perceived control in questions regarding their roles and responsibilities with the CTE program. Additional profile questions included: current position title, years served in current role, and years of experience associated with current school district.

Research Design

A qualitative multiple case approach was used in this study. Qualitative research has proven to be well-suited for research problems that require observation of a phenomenon or group, dynamic situations, and issues in its natural setting that seek to explain or provide a narrative for what has transpired (Stake, 2006). While the qualitative research approach is used less often than quantitative methods in fidelity implementation research studies, this methodology can lead to a greater understanding of multidimensional connections formed by the diverse interactions between individuals and their environments. Employing a qualitative approach enabled the researcher to explore the phenomenon studied through various lenses using multiple data sources within a specific context (Creswell & Poth, 2018; Yin, 2014).

Through the use of multiple cases, this research design “enables replication . . . to independently confirm emerging constructs and identify complementary aspects of the phenomenon under investigation by analyzing within and across settings” (Anderson et al., 2014, p. 89). A multiple-case study approach allowed the researcher to explore CTE

programs through different perspectives, which provided a more complete representation of CTE programs while offering depth of insight through thick, rich descriptive data. A multiple-case approach also resulted in a more robust study with a broader perspective than likely in a single-case study (Yin, 2014).

In this multiple-case study, the researcher conducted semi-structured interviews to gather data. The inductive nature of this method allowed the researcher to organize and compile thick, descriptive data. Creswell and Creswell (2018) explained that the researcher must collect rich, dense data from program participants essential for creating the narrative. The researcher used thick, descriptive data to narrate and ensure that the participants' lived experiences were well represented and adequately documented.

With this qualitative research study, the researcher sought to understand the influence of advisory committees on education outcomes and employment opportunities for CTE participants. The researcher also desired to understand better the lived experiences of relevant CTE program advisory committee members, administrators, and instructors and document their perceptions of advisory committee members' role in successful CTE programs. Using a multiple-case study approach allowed the researcher to compare and contrast situations (Stake, 1995). Thus, the rationale for a multiple-case approach was to explore the similarities and differences of the various advisory committees serving CTE programs within Central Texas.

Research also informed the number of cases selected for this study. Eisenhardt (1991) stated the number of cases involved in a multiple-case study depends on the information and added value associated with each additional case. Stake (2006) argued that selecting fewer than four cases does not allow for sufficient interactivity amongst the

situations, while higher than 10 cases offered more interactivity than practical. In either instance, too few or too many cases limit the benefits of using a multiple-case study. Consequently, the researcher identified four CTE programs with unique advisory committee structures worthy of consideration. A multiple-case study allowed the researcher to collect and analyze data both within the particular setting and across various settings.

Participants and Sampling

The cases in this study were bound based on criteria established by the researcher. The participants selected for this multiple-case study included four CTE programs offered within public ISDs in Central Texas. More specifically, the researcher selected the following individuals from each program:

1. Advisory committee member
2. CTE program director/administrator
3. CTE instructor

Rather than using random sampling of CTE programs offered within public ISDs to select participants, the researcher employed purposeful sampling in selecting the participants for this study. The researcher identified CTE programs offered within public ISDs in Central Texas that had active advisory committees and demonstrated effective implementation of CTE programs. This study highlighted Central Texas CTE programs that have been relatively successful at adhering to Perkins V legislative requirements and whose programs may serve as models for aspiring CTE programs. Once selected, the researcher engaged the CTE Director's assistance in purposefully selecting an advisory committee member and instructor whose familiarity and involvement in the development

and implementation of CTE programs would enable them to contribute to the body of knowledge collected during the semi-structured interview. Using purposeful sampling to determine the sites and participants enabled the researcher to carefully and intentionally choose individuals that could provide relevant data to inform the research and answer the research questions (Creswell, 2014).

The state and the federal government require eligible CTE programs to have advisory committees comprising school and business professionals involved with the program's implementation and oversight. Though advisory committees are mandatory, there is little guidance on how the committees should be constructed and, more importantly, how they should operate. While several high schools within Central Texas qualify as eligible CTE programs, the programs identified for this study each have advisory committees that vary significantly in their level of engagement. The researcher selected the participants based on their roles and responsibilities related to the CTE programs. The researcher identified participants based on their perceived knowledge and expertise to enable the researcher to gather data sufficient to answer the research questions.

Before approaching the public ISDs identified for the study, the researcher received Institutional Review Board (IRB) approval (see Appendix A). Following IRB approval, the researcher contacted the Superintendent or designated department for each school district. Once the researcher attained approval from the district, the next step involved contacting CTE directors to schedule a meeting to discuss the study, examine the school's CTE program, and request names and contact information for advisory

committee members and CTE instructors. Table 2 shows some demographics of the study participants along with the pseudonyms assigned each participant.

Table 2
Participants

CTE Program	Role	Pseudonym	Years in Position	Years Associated with ISD
A	Director	Amy	21	21
	Administrator (High School)	April	4	21
	Advisory committee member (High School)	Angel	5	26
	Instructor	Anthony	7	7
	Administrator (Academy)	Adam	5	5
	Advisory committee member (Academy)	Austin	8	8
B	Administrator	Brett	2	2
	Advisory committee member	Brooke	6	5
	Instructor	Bethany	3	14
C	Administrator	Candice	4	9
	Advisory committee member	Charlie	19	19
	Instructor	Chris	4	10
D	Administrator	Danielle	8	8
	Advisory committee member	David	8	6
	Instructor	Dylan	9	6

Data Collection

The data collected was primarily obtained using semi-structured interviews. Before conducting the interviews, the researcher gave each participant the interview questions they would be asked. The researcher provided the interview questions to allow them to reflect on the topics to be addressed during the interviews.

The researcher established a data collection timeline and developed an interview calendar to manage and coordinate scheduled interviews among the various participants.

The data collection process commenced in August 2020 and concluded in March 2021. The researcher ensured all data complied with guidelines established by the IRB and rules of engagement provided by each high school describing the terms of their involvement.

The researcher used internal documents, external reports, and interviews to facilitate data collection. In this multiple-case study, the researcher requested information about the organization and implementation of the advisory committee and the school's CTE program. This information helped the researcher understand the advisory committees and their expected role in the CTE programs. Also, the researcher requested a copy of the district's Comprehensive Local Needs Assessment (CLNA). The recently reauthorized Perkins V requires all eligible CTE programs to complete a CLNA once every 2 years to comply with the new requirement. The CLNA required community stakeholder input to complete and served as a basis for the district's CTE program decision-making. External reports obtained from Texas Education Agency included the Texas Academic Performance Report for the 2019–20 school years and the Budgeted Financial Data for the 2019–20 and 2018–19 fiscal years. The external reports provided detailed performance and financial data for each school district.

Participants' Interviews

The researcher conducted semi-structured interviews with one advisory committee member, the district's CTE administrator, and one CTE instructor from three of the programs. To better understand CTE Program A's complex nature, which consisted of four independent advisory committees, the researcher interviewed a total of six participants, which included the district's Dean of Academies from one of the high

schools and one of the academies, and an advisory committee member from each of those programs. The use of several sources to inform the research enabled data source triangulation and allowed the researcher to analyze and ensure the evidence supported the study's findings. Data source triangulation allowed the researcher to use converging evidence to support and strengthen the study's validity (Yin, 2014).

The semi-structured interviews elicited rich, thick data that provided insight and support for the research. Creswell (2014) declared the semi-structured design allowed participants to share their experiences while minimizing potential biases lessening the researcher's influence. Open-ended questions allowed the participants time to communicate their beliefs, opinions, and perspectives. At the same time, it allowed the researcher to explore further any emerging ideas as they unfolded. While face-to-face interviews were preferred, Texas issued "shelter-in-place" orders that required social distancing and restricted unnecessary personal contact. Thus, the researcher used Zoom meetings to conduct the interviews.

While the researcher asked each participant the same questions, the researcher designed three interview protocols for data collection (see Appendix B). An interview protocol was designed for advisory committee members to understand their perceived role and involvement in education and employment outcomes. A second interview protocol for CTE administrators allowed the researcher to understand their perception of CTE programs and their impact on education and employment outcomes. Finally, a third interview protocol was used for CTE instructors to gain insight into their understanding of CTE programs' effects on education and employment outcomes.

The researcher provided each participant with the questions before the interview, the Zoom link, and other relevant information for the scheduled interview. The researcher also sent meeting invites to ensure that the planned interview appeared on both the researcher and interviewees' calendars. Each interview conducted lasted on average 45 minutes to 1 hour in length. The researcher recorded each interview and notified all participants of this intent before the interview.

Program Documents

In qualitative research, documents provide the researcher with vital information to understand the phenomenon or case studied (Creswell, 2014). The CTE programs provided the researcher with access to program documents. Documents beneficial for this study included the reports that detailed and described the CTE programs and their impact on education and employment outcomes were also collected and analyzed to gain perspective, inform the research, and enable the researcher to address the research questions.

In addition to the required inclusion of advisory committee involvement in CTE programming, the most recently reauthorized Perkins V legislation mandated completing a comprehensive local needs assessment (CLNA) once every 2 years. "The purpose of the CLNA is to support data-driven decision-making and more closely align planning, spending, and accountability activities under Perkins V" (TEA, 2020b, p. 2). To assist Texas school districts in adhering to this new requirement, the TEA (2020b) published a guidebook. In the guidebook, TEA explained the strengths and opportunities for improvement reported in the CLNA should be strongly associated with the strategies, practices, and any program improvement plan detailed in the local Perkins application.

The researcher used the data provided in the CLNA to assess the CTE programs used in this study.

The Perkins V legislation required school districts to recruit, consult, and engage a diverse group of stakeholders to complete the mandated local needs assessment (TEA, 2020b). Perkins V identified stakeholders as career and technical education representatives from within the program and within the community, parents, students, and individuals representing special populations and other special needs youth groups, such as homeless or in foster care (TEA, 2020b).

The CLNA required school districts to assess their work for each of the sections identified in Figure 8. According to Perkins V, the areas highlighted in Figure 8 are essential in evaluating the school district's CTE programs.

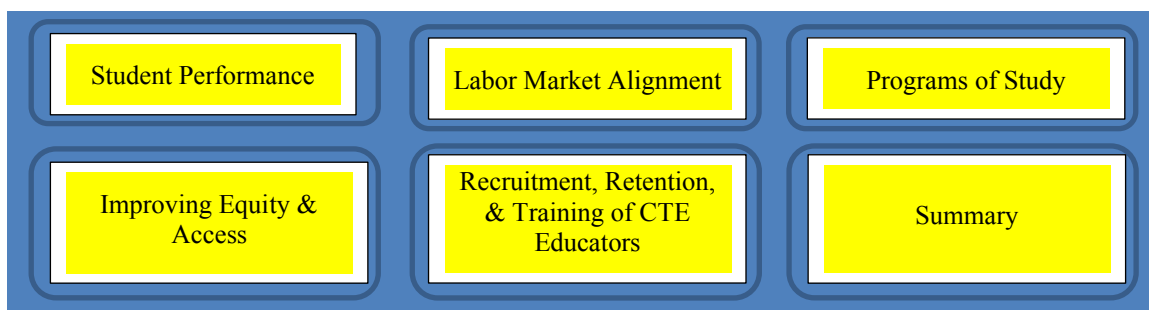


Figure 8. Sections reported in CLNA.

Note. Reprinted from *Texas Comprehensive Local Needs Assessment Guidebook*, by Texas Education Agency, 2020b, p. 2 (https://www.escll.net/cms/lib3/TX21000259/Centricity/Domain/486/Texas%20CLNA%20Guide%20Book_v11_final.pdf). Reprinted with permission.

The student performance measure compares data for CTE learners to non-CTE learners. While there are five classifications of student learners (see Figure 9), CTE

Concentrators and CTE Completers collectively referred to as CTE Learners for reporting purposes.

Non CTE Learners	 Not CTE	Code 4: A student who never enrolled or who did not complete any high-school CTE course as defined by 19 TAC Chapter 126 (C), 127 (B) or 130.
	 CTE Participants	Code 5: A student completing one, but not two or more high-school CTE courses as defined by 19 TAC Chapter 126 (C), 127 (B) or 130, for two or more credits (the student does not have to pass or receive credit).
	 CTE Explorers	Code E: A student completing and passing two or more high-school CTE courses as defined by 19 TAC Chapter 126 (C), 127 (B) or 130, for at least 2 credits, not within the same program of study, and not a participant, concentrator or completer.
CTE Learners	 CTE Concentrators	Code 6: A student completing and passing two or more high-school CTE courses as defined by 19 TAC Chapter 126 (C), 127 (B) or 130, for at least 2 credits within the same program of study and not a Completer.
	 CTE Completers	Code 7: A student completing and passing three or more high-school CTE courses as defined by 19 TAC Chapter 126 (C), 127 (B) or 130, for 4 or more credits within a program of study, including one level 3 or level 4 course from within the same program of study.

Figure 9. Classification of student learners reported in CLNA.

Note. Reprinted from *Texas Comprehensive Local Needs Assessment Guidebook*, by Texas Education Agency, 2020b, p. 7 (https://www.escll.net/cms/lib3/TX21000259/Centricity/Domain/486/Texas%20CLNA%20Guide%20Book_v11_final.pdf). Reprinted with permission.

In the Labor Market Alignment analysis, school districts evaluate how well CTE programs align with local, state, and regional labor market needs. For the Programs of Study indicator, CTE programs assess whether their course offerings are sufficient to meet their diverse student population's needs.

Administrators also ensure the programs properly align with subsequent education opportunities. Finally, these programs assess whether they provide a quality, rigorous

curriculum necessary to develop knowledge and skills essential for success. Table 3 identifies the minimum number of programs of study required based on the school district’s total enrollment. Recruitment, Retention, and Training of CTE Educators required school districts to offer a comprehensive assessment of the activities they utilize to attract, engage, and retain qualified professionals.

Table 3

Perkins V–Minimum Programs of Study

LEA High School Enrollment	No. of Programs of Study Offered
Less than 500 students	1
501–1,000 students	2
1,001–2,000 students	3
2,001–5,000 students	4
5,001–10,000 students	5
10,001 + students	6

Note. Reprinted from *Texas Comprehensive Local Needs Assessment Guidebook*, by Texas Education Agency, 2020b, p. 20 (https://www.escll.net/cms/lib3/TX21000259/Centricity/Domain/486/Texas%20CLNA%20Guide%20Book_v11_final.pdf). Reprinted with permission.

The review of educators included an appraisal of professionals currently involved in their programs and those planned for the future. The Improving Equity and Access section enabled administrators to assess and evaluate ways their programs provide equal access and maximize success for all students, particularly special populations (TEA, 2020). Finally, the Summary section of the CLNA facilitated the “data-driven decision-making” (TEA, 2020b, p.2) process by requiring school districts to identify priorities, evaluate low-performing indicators, and develop improvement plans.

The CLNA (TEA, 2020b) and other documents obtained provided support for the researcher to craft each school district's descriptive, narrative profiles and evaluate their CTE programs. The mandatory uniform reporting of this data ensured consistency and reliability of the information. Finally, this data also enabled the researcher to use similar characteristics to compare and contrast the school districts and the CTE programs.

Summary of Data Collection

The researcher collected data from multiple sources, including interview transcripts, internal program documents, and external government reporting. Collecting various data sources allowed for "converging lines of inquiry" (Yin, 2014, p. 120) and data triangulation, which contributed to the soundness and credibility of the data collected. Yin (2014) argued that this approach also improves the consistency and reliability of the findings.

Data Analysis

The data analysis phase of this study started once the data collection ended. Once the researcher gathered documents and conducted the interviews, the researcher transcribed and analyzed all the information. The researcher used coding to identify insightful descriptors of the advisory committees, CTE programs, and emerging themes. Coding the data allowed the researcher to organize the data by common themes and notice developing patterns. The purpose of using qualitative research is to gather thick, rich descriptive data. To manage the large amount of data collected, the researcher used the spiral concept to process and narrow the data into smaller groupings (Creswell &

Poth, 2018). The researcher repeated the spiraling process collapsing redundant codes and incorporating them into broader themes.

Coding

According to Creswell and Creswell (2018), “coding involves aggregating the text or visual data into small categories of information, seeking evidence for the code from different databases being used in a study, and then assigning a label to the code” (p. 184). The initial list of codes included perceived role, advisory committee involvement, advisory committee effectiveness, impact on education, impact on employment, and Perkins’ alignment. Each additional review cycle resulted in an expanded number of codes. Upon further examination, some additional codes included labor market alignment, factors of successful CTE, and factors that challenge CTE. The coding process allowed the researcher to chunk and group the information while also beginning to identify common themes within each case study and across cases. Analyzing and coding the data also enabled the researcher to consolidate large amounts of data into smaller, more meaningful themes beneficial during the final analysis phase.

After coding and grouping the data, the researcher identified emerging patterns and common themes. Creswell and Creswell (2018) explained that “themes in qualitative research (also called categories) are broad units of information that consist of several codes aggregated to form a common idea” (p. 186). Analyzing codes enabled the researcher to categorize more significant concepts that emerged from the data.

Creswell and Creswell (2018) described the interpretation phase as “involving abstracting out beyond the codes and themes to the larger meaning of the data” (p. 187).

During this phase, the researcher identified common themes discussed among participants with each case.

Single-Case Analysis

The researcher initially conducted a single-case analysis to identify emerging themes specific to each CTE program. Participants from each CTE program served in one of the following capacities: advisory committee member, the district's CTE administrator, and CTE instructor represented a single case. This process enabled the researcher to obtain a deeper understanding of the unique characteristics of each CTE program.

Pattern Matching

Pattern matching is the data analysis technique used that strengthens internal validity when empirical and predicted data patterns are congruent (Yin, 2014). This process “is one based on the findings from your case study—with a predicted one made before you collected your data” (p. 145).

The researcher analyzed and compared the data, always associating theoretical patterns with patterns that emerged from the data (see Figure 10). The researcher addressed any identified threats to validity by repeatedly comparing the theoretical and observed themes categorizing and coding unique variables' presence to the appropriate independent case. In this study, the researcher used document data from the CLNA (TEA, 2020b) and information from the semi-structured interviews.

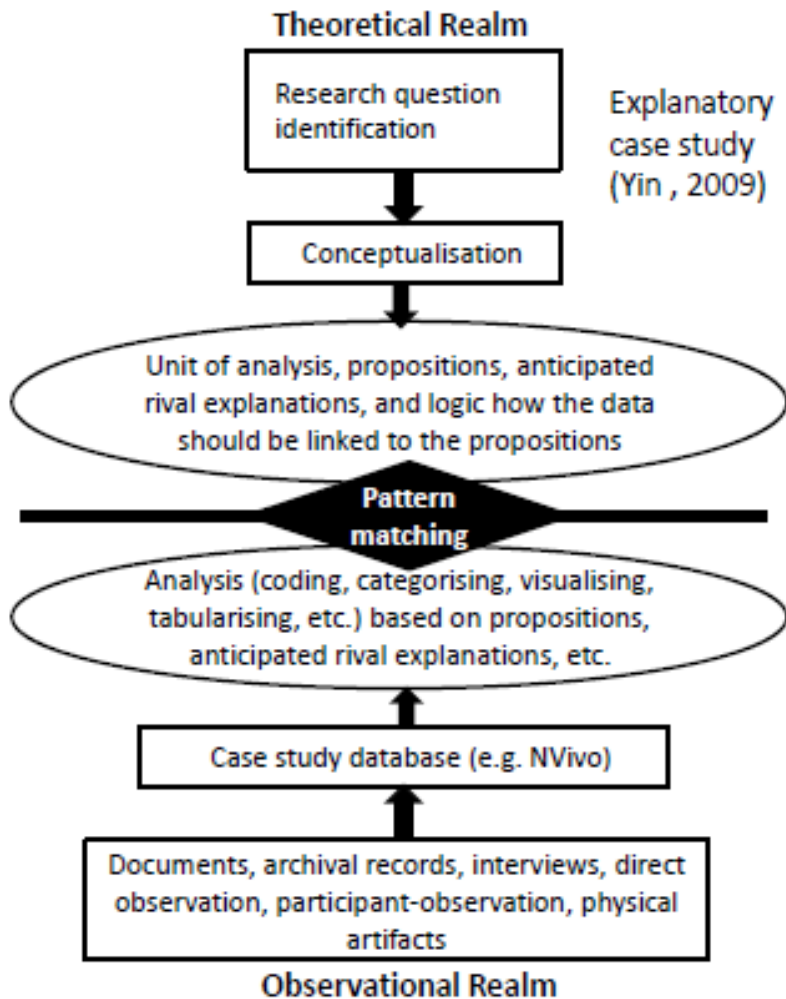


Figure 10. Pattern matching.

Note. Reprinted from “Pattern Matching in Qualitative Analysis,” by. N. Sinkovics, 2018, p. 468, In C. Cassell, A. Cunliffe, & G. Grandy (Eds.), *The Sage Handbook of Qualitative Business and Management Research Methods* (pp. 468–485). Copyright 2018 by Sage. Reprinted with permission.

Cross-Case Analysis

Lastly, the researcher conducted a cross-case analysis through all four cases to identify and compare themes and patterns that emerged. Creswell and Poth (2018) acknowledged cross-case analysis should follow the individual-case analysis. This subsequent analysis reveals emerging themes shared among multiple cases. Triangulation

of the data across multiple sources contributes to establishing credibility necessary in a multiple case research study.

Validation Strategies

The researcher took great care to ensure the accuracy and credibility of the data. Creswell (2014) explained “validating qualitative data means that the researcher determines the accuracy or credibility of the findings through strategies such as member checking or triangulation” (p. 630). The researcher used member checking and triangulation to ensure narratives accurately reflected participants’ experiences.

Member Checking

Member checking is an essential component of ensuring accuracy and establishing trustworthiness in qualitative research (Creswell & Miller, 2000; Lincoln & Guba, 1986; Stake, 1995). Stake (2006) reasoned that “when knowledge is being constructed, no two observers construct it exactly the same way” (p. 37). Thus, having the interviewee review the draft transcript of their interpreted piece “. . . for accuracy and possible misrepresentation” (p. 37) improves validity. The researcher used member checking to validate the data collected in this study. The researcher reviewed and coded all transcribed data. The researcher provided participants with a copy of the analyzed data via email or mail. Participants reviewed the reports and made necessary changes that ensured the accuracy of the information. The instructions asked participants to respond within 2 weeks with any corrections or modifications to the transcript. Once the participants reviewed and approved the analysis conducted on their single case, the researcher performed a cross-case analysis.

Data Triangulation

In this multiple-case study, the researcher used several data sources to inform the research. Yin (2018) argued that a case study's conclusion is much more reliable and persuasive if multiple sources support the findings. The researcher collected data from a diverse group of participants with different roles associated with CTE programs, including a CTE administrator, advisory committee member, and a CTE instructor from each ISD. The researcher used triangulation to analyze and reference the data to ensure the evidence supported the appropriate finding. Data triangulation allowed the researcher to use converging proof to strengthen the study's validity.

Credibility

In qualitative research, credibility is referenced by how closely the study's findings reflect the real world (Merriam, 2009). The researcher used multiple strategies, including member checking, data triangulation, and ensured an appropriate amount of time to collect data to improve the study's credibility. Member checking was used by asking participants to verify the accuracy of the reports of their analyzed data. The researcher used data triangulation by compiling and cross-referencing information attained from three different sources within each school district, including the CTE administrator, advisory committee member, and a CTE instructor. The researcher allocated 7 months to data collection, ensuring that sufficient time was available for gathering the data.

Transferability

Merriam (2009) explained that transferability referred to the study's findings to other situations. Merriam argued researchers must ensure the study included thick, rich descriptive data (Merriam, 2009). To comply, the researcher used thick, rich data to describe all aspects of the study to allow for the transferability of findings to another context.

Dependability

In qualitative research, dependability referred to another researcher's ability to conduct the same study producing the same results (Merriam, 2009). The researcher used triangulation to validate data collected from multiple sources. The researcher also submitted the completed dissertation to a review committee to examine the data and verify the findings. Finally, the researcher took care and concern to disclose her positionality related to the research.

Limitations and Delimitations

In early 2020, the United States became one of many countries exposed to the coronavirus resulting in an uncontrollable surge in COVID-19 cases and an overwhelming number of tragic deaths. The deadly coronavirus caused many states to issue "shelter in place" orders to reduce the virus's spread. Consequently, schools closed their facilities and required students to complete their spring 2020 semester at home. This pandemic restricted access to CTE program staff members, including administrators and instructors, and made program participant observation impossible.

The research on CTE programs and their impact on education and employment outcomes is growing; however, there is little research on Advisory Committees' role in achieving those desired results. While this research study contributes to the emerging scholarship on Advisory Committees, it is limited to four CTE programs within Central Texas. As with all qualitative research studies, the researcher designed this study to capture its participants' lived experiences. The researcher evaluated community and business partners' involvement in CTE advisory committees within Central Texas with this study. The researcher did not intend to generalize the results and apply them to other areas with characteristics that varied greatly from those studied.

Given that the researcher conducted a study in education, which was different from their field of employment and unrelated to any prior experience, the researcher's positionality presented some challenges. The researcher did not have many established relationships in the selected schools and CTE programs; thus, identifying the appropriate people within each school district required additional time. Performing a study in an unrelated field created a language hurdle in determining the proper terms to conduct the research.

This research is limited to the Central Texas school districts identified within this study. The participants identified and selected from each school district restricted data collection to their lived experiences. The CTE administrators for each school district identified and selected the CTE advisory committee member and CTE instructor to participate in the study.

Ethical Considerations

Conducting ethical research requires the researcher to consider the participant's perspective in every aspect of the study (Webster et al., 2014). According to Webster et al. (2014), quality research requires ethical guidelines to be followed and ethical issues anticipated. For this study, relevant research practices necessitated the researcher to protect all participants from harm; build trust with involved parties; foster integrity within the study, minimize the risk of any wrongdoing; and anticipate potential issues (Creswell & Creswell, 2018; Israel & Hay, 2006). Per Baylor University's Human Research Protection Program, the researcher completed a review by the IRB before the study commenced.

Before conducting the interviews, the researcher provided each participant with communication explaining the study's purpose and objective(s). The researcher provided the appropriate documentation which described the research (see Appendix C) and obtained proper consent (see Appendix D). The researcher used semi-structured interviews to gather data from the participants. Participants received information explaining why they were selected and what to expect during the interview in advance. During the semi-structured interview, the researcher informed participants that they could decline to answer any question or provide additional information if they desired to do so.

The researcher took care to make sure the questions were unique, clearly worded, and relevant to the study. The researcher used a voice-activated digital recorder to document each interview. The researcher downloaded all recorded interviews to the researcher's personal computer. The researcher's computer was password-protected and conducted a regularly scheduled virus scan to ensure data were stored correctly and

secured. Once transcribed, processed, and analyzed, the researcher purged the files of all video recordings from the researcher's computer hard drive. All printed data were stored and protected in a locked, fire-proof cabinet. Once processed and analyzed, the written information was shredded and properly disposed of. The researcher protected each participant's anonymity during the review, access, storage, and reporting of all data.

Conclusion

The purpose of this study was to understand better the perceived role of advisory committees in the implementation and ongoing oversight of CTE programs and the perceived effectiveness of CTE programs on education outcomes and related employment opportunities for its participants. To achieve the purpose of this study, the researcher employed a qualitative multiple-case study approach. Participants were selected based on their knowledge and ability to contribute and inform the research. The data collection process lasted for 7 months. The researcher ensured the data's credibility and validity by using member checking and data triangulation strategies. The researcher collected all data per the guidelines established and provided by the IRB. Semi-structured interview protocols provided thick, rich data coded and grouped according to themes that emerged during data analysis. The researcher included specific details on personal positionality, ethical considerations, limitations, and delimitations to improve transferability, dependability, and confirmability.

CHAPTER FOUR

Results and Implications

Introduction

For this study, a multiple-case study approach was used to explore advisory committees' role in the implementation and ongoing oversight of CTE programs offered by public ISDs located in Central Texas. Data from relevant documents and participant interviews were collected to answer the central research question: What is the role of advisory committees in the implementation and ongoing oversight of Career Technology Education (CTE) programs offered by Central Texas independent public-school districts (ISD)? Similar data were used to examine four secondary questions:

1. What do advisory committee members, CTE program administrators, and CTE instructors perceive is their role regarding their ISD's CTE programs?
2. What do advisory committee members, CTE program administrators, and CTE instructors believe about the effectiveness of their ISD's advisory committee in developing and implementing CTE programs?
3. How well do advisory committee members, CTE program administrators, and CTE instructors perceive their school's CTE program aligns with Perkins V legislative requirements?
4. What do advisory committee members, CTE program administrators, and CTE instructors believe about the effectiveness of their school's CTE program on education outcomes and employment opportunities?

Chapter Four presents the results from data collection and analysis, including a summary of data obtained from the CLNA documents, interview analysis performed using the NVivo software application, and the corresponding results.

As noted in previous chapters, the modified implementation fidelity framework was used in this study. The initial framework proposed by Carroll et al. (2007) consisted of five dimensions that included adherence, dose, quality of delivery, participant responsiveness, and program differentiation. The modified implementation fidelity framework incorporated two additional components, including the setting or context of a specific moderator and participant recruitment (Pérez et al., 2016), each of which is instrumental in evaluating and understanding the impact of advisory committees on education outcomes and employment opportunities. This framework provided a basis to analyze the data from documents collected and interviews conducted. This framework also supported conducting interviews with multiple members in each case that possessed different perspectives and breadth across multiple instances of various CTE programs. Finally, the research findings enabled this researcher to identify common themes within the individual cases and emerging themes through cross-case analysis to understand the advisory committee's role in implementing and ongoing oversight of CTE programs of public ISDs in Central Texas.

Participants

A detailed description was provided explaining how participants were identified and selected in Chapter Three: Methodology. This section summarizes the narrative responses obtained from the semi-structured interviews conducted with the advisory committee member(s), the CTE director or administrator(s), and the CTE instructor from each CTE program. To protect their privacy, each participant was assigned a pseudonym. The pseudonyms selected were names beginning with the letter assigned to each school district. So, the names for all CTE Program A participants start with the letter A, all

participants of CTE Program B begin with the letter B, and so forth. The pseudonym for each participant, their role within the CTE program, the number of years in their current position, and the number of years associated with the selected school district in Table 3 located in Chapter Three.

Individual Case Profiles

Each case is represented by presenting three perspectives: advisory committee member, the district's CTE administrator or coordinator, and CTE instructor. This multiple-case study includes four individual cases. The cases in this study were bound based on the district's location in Central Texas and the distinctive design of the CTE program. The participants selected for this multiple-case study included four CTE programs offered within public ISDs in Central Texas. Given the limitations imposed by the Covid environment, the respective district's CTE director identified and selected the participants for this study. This section describes each case, including an overview of their CTE program, the three participants' perspectives from each program, particular themes coded from each interview, and the common themes associated with each case.

In the first case study, a uniquely structured district consisting of four campuses offering various CTE programs is presented. Two campuses are high schools and two are considered academies. Each CTE program also has an independent advisory committee.

Case 1–CTE Program A

The school district that administers CTE Program A is a 6A district with an estimated 15,000 total enrolled student population (including grades from early childhood education to Grade 12), 48.6% identified as female and 51.4% as male. According to the

Texas Academic Performance Report for the 2019–20 school year, of the total enrolled student population, 90.6% were deemed economically disadvantaged with an ethnic distribution that included 60.3% Hispanic, 28.5% African American, 8.7% White, 2.4% representing other races (TEA, 2020a). The same report showed approximately 3,000 high school students enrolled in a CTE program representing 76.1% of the district’s high school (Grades 9–12) student population. Worth noting is the total percentage of students enrolled in CTE programs for this school district exceeded the average enrollment of 50.8% reported for all students participating in CTE programs for the state of Texas.

The school district’s budget totaled more than \$190 million for the 2019–20 academic year. Career and technical programs’ total expenditures totaled approximately \$7.2 million, representing 4.73% of all general fund expenses for the district, totaling nearly \$152.5 million. While the percentage budgeted for career and technical programs decreased from 5.02% of general fund expenses in the 2018–19 reporting period to 4.73% for the 2019–20 period, the total dollar amount invested in CTE programs increased by \$2 million from \$5.2 million to \$7.2 million.

CTE Program A is a uniquely structured program that includes CTE courses offered at two area high schools, one 6A and the other 5A, and highly experiential training provided at two smaller learning communities that will be referred to as “academies.” The two academies are innovative learning environments that provide highly specialized curriculums for students in Grades 10–12 enrolled at the two area high schools and students attending high schools in neighboring districts. Students participating in the collaborative learning experience attend their respective high schools during the morning school session and travel to the cooperative learning locations for

specialized courses in the afternoon. As shown in Figure 11, the school district has one Director of CTE. The two high schools and two CTE academies each have a Dean of Academies that manages the respective campus' CTE program, an independent advisory committee, and separate CTE instructors.

Case 1–CLNA Document Review

The CLNA report was reviewed and analyzed to determine how well CTE Program A aligned with Perkins performance indicators. Based on the 2020–2021 CLNA, CTE Program A reported 13 career clusters with 935 CTE learners enrolled, including students designated as CTE Concentrators and CTE Completers. According to the section on labor market alignment, the district ranked health science as its number one career cluster with 16% of its CTE learners enrolled. Law and public service ranked second with 15% of the reported CTE learners. Arts, audio visual technology and communication and business, marketing and finance nearly tied for third with 13.2% and 13% respectively of enrolled CTE learners. Based on the number of CTE learners enrolled, information technology, architecture and construction, and agriculture, food and natural resources ranked lowest in those career clusters with 1.1%, 1.3%, and 2%, respectively.

According to Table 4, the district met or exceeded accountability indicator targets for CTE learners in three areas: post-program placement reporting 79% for the district compared with 71% for CTE learners statewide, program quality–attained recognized at 12% for the district compared with 8% statewide, and program quality–CTE completer 48% for the district compared with 32% for CTE learners statewide.

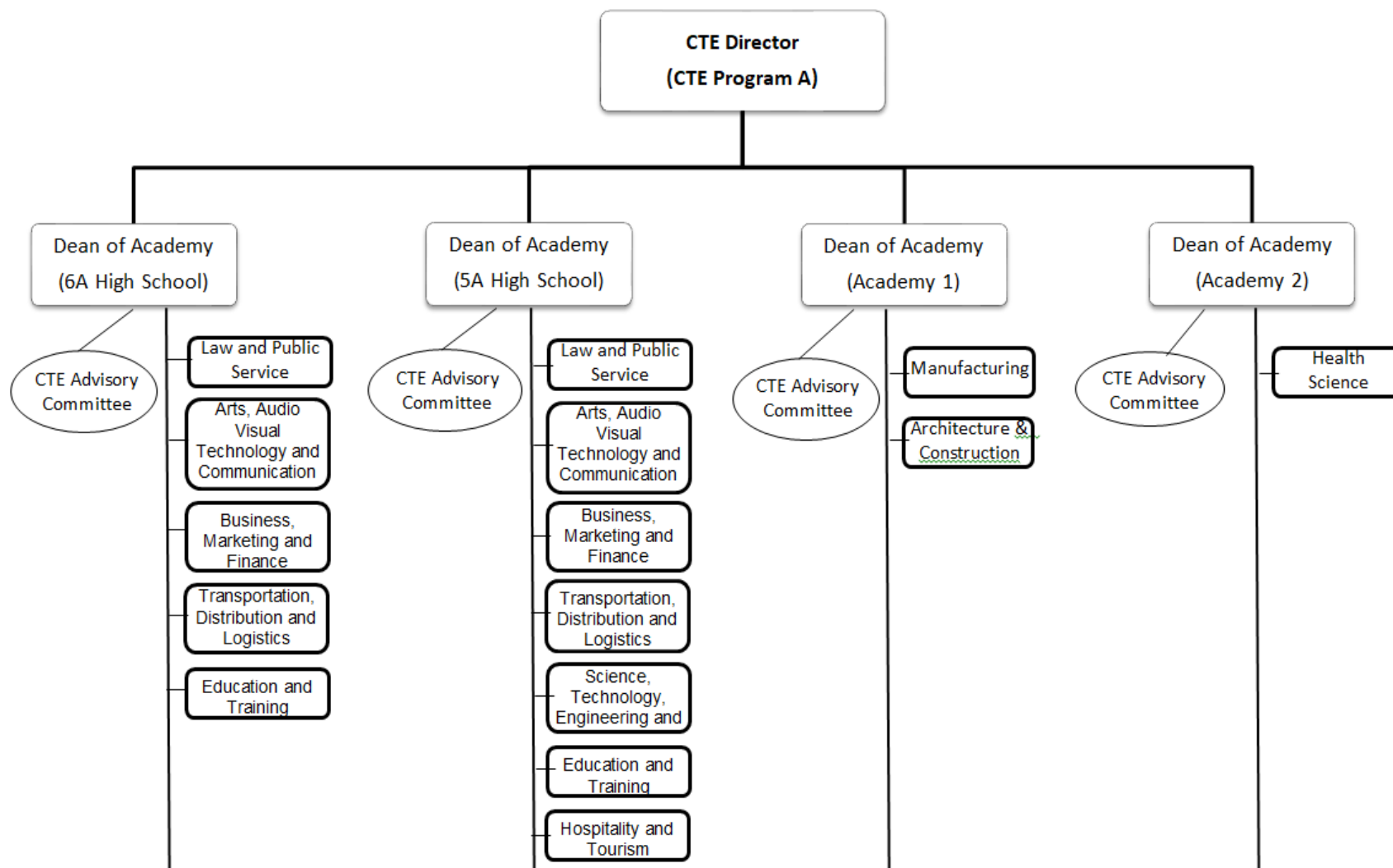


Figure 11. District 1–CTE Program A design structure.

CTE Program A reported figures that were within 5% of the accountability indicator targets for the district's CTE learners in two areas: 4-year graduation rate reporting 92% for the district compared with 97% for CTE learners statewide and non-traditional program concentration with 47% for the district compared with 50% statewide.

Table 4

Perkins V Performance Indicators—CTE Program A

Indicator	Name	CTE Learners	
		Statewide %	District %
1S1	4-Year Graduation Rate	97	92
2S1	Academic Proficiency in Reading/Language Arts	58	41
2S2	Academic Proficiency in Mathematics	47	30
2S3	Academic Proficiency in Science	60	45
3S1	Post-Program Placement	71	79
4S1	Non-Traditional Program-Concentration	50	47
5S1	Program Quality – Attained Recognized	8	12
5S4	Program Quality – CTE Completer	32	48

Note. Reproduced and used with permission from School District 1.

Despite reporting lower than statewide on 1S1, 2S1, 2S2, 2S3, and 4S1 performance indicators, data revealed CTE learners outperformed non-CTE learners in the relevant categories 1S1, 2S1, 2S2, 2S3, 3S1, and 5S1 indicators. The report also

showed higher representation for Female, Hispanic or Latino, and Two or More Races for CTE learners compared to the district's total student populations. The following section presents the interview analysis of CTE Program A's participants.

Case 1–Interview Analysis

The interview analysis process allowed me to evaluate each participant's responses by first determining critical codes and identifying common themes within this individual case. As mentioned previously, participants were assigned a pseudonym. The pseudonyms selected were names beginning with the letter assigned to each school district. So, the names for all participants of CTE Program A also started with the letter A.

To better understand CTE Program A's complex nature, six individuals were interviewed. The six participants interviewed for this case included the district's CTE director, a Dean of Academy for a 6A high school, a Dean of Academy for one of the academies, two advisory committee members, and a CTE instructor. Each of the two high schools and two career academies are governed by separate advisory committees averaging 20 or fewer committee members.

Amy–CTE Director

Amy currently serves as the Director of Career and Technical Education for District A. While serving in the Career and Technical field for 39 years, she has served as Director for this district for 21 years. Amy oversees the Career and Technical programs for the entire district, including two 5A high schools and two career academies. Amy's interview was conducted in late January 2021 and lasted 1 hour and 45 minutes.

Perception of the personal role. When asked how she perceives her role regarding her district's CTE programs, Amy described how her role has evolved over time, transitioning from managing teachers to focusing on curriculum and innovation.

My role is to support the teachers in [designing and developing] curriculum. Also, my role is to bring innovative programs forward. I monitor instructions to support my Deans, and then it is to be the voice for CTE in the community, to engage the community, and get word out about our programs.

She explained that she supports the delivery of CTE programming by overseeing the budget process for all campuses. She establishes the goals, objectives, and expectations while constantly evaluating and monitoring to ensure the programs meet or exceed those expectations.

Perception of the advisory committee. When asked to discuss her perception of the district's CTE advisory committee and their effectiveness in developing and implementing CTE programs, Amy explained why they are critical to the programs' success.

I believe they're vital. We have done a lot of things [such as] innovative programs that would be hard to get across. We have board members who advocated for us in the community because they're at the advisory board meeting; they'll advocate for us in the community, including their place of employment, such as the different colleges or businesses they work.

She further explained that she could be an expert in developing a curriculum and knows what to do to engage students. Still, she relies on the advisory committee members to be the expert in their industries and businesses. She said, "They provide us the expertise in their field of what they will need the students to know and do." About once a year or on an as-needed basis, Amy noted committee members review curriculum to ensure what

they are teaching is still relevant. She also added the advisory committee challenges her to keep up with the times, which prepares her students for today's workforce.

Practices implemented. Amy noted Covid presented some challenges for her teachers and severely limited their ability to provide the hands-on learning experience students were accustomed. To support her instructors, she started a daily blog (including Saturdays and Sundays) trying to encourage them and keep their spirits up.

When asked to rate the success of the CTE programs her district offers, Amy believed they rated pretty high. She explained that one reason would be their efforts to remove barriers for their students. The district provides transportation for students who attend a high school in the morning and one of the academies in the afternoon. Another reason she rates her district's CTE programs high is the "constant improvement, constant growth mindset." Amy explained that they are always evaluating and improving their programs. The third reason she cites is the success of her students in obtaining their certifications. She noted certifications are a vital component of CTE programs because they enable students to start a career upon graduating from high school.

Impact of CTE on education outcomes and employment opportunities. When asked to reflect on the impact of CTE on education outcomes and employment opportunities for her students, Amy acknowledged that her district "struggles with [their] dropout rate." However, she explained, "CTE students have the lowest dropout rate in the district at 2.1% while some of the districts are upwards of 5 and 6%." Thus, Amy firmly believes participating in CTE keeps kids in school.

Amy also thinks CTE builds confidence and helps young people find their place.

She explained why CTE has such a positive impact on her students.

Everyone has expectations about what high school should be [and what] you should be like, that tiny girl is a cheerleader or that athletic kid is the star football player. Then you have these kids who don't fit that mold. They're not in sports, and they're not in the band. Then we get them, and they become rock stars. They start producing these construction floor plans and these animation projects that just wow everybody. Then they develop confidence, and they find that place.

Amy argues that participating in CTE helps students make meaningful connections between their education and career paths.

Understanding of Perkins legislation. When asked to describe her knowledge of the Perkins V legislation, Amy noted she observed several critical changes.

One thing with Perkins V is there is a new expectation of quality for what we offer in our classes. To begin with, we had to do a community project where we surveyed the community about what they wanted and needed. I think in Perkins V, they're trying to get us away from those things that are nice to know and fun to know but result in low-wage jobs. Then there's also an emphasis on certifications which enables students to go straight to work rather than college [after graduating high school].

Amy elaborated further, "One of the Perkins requirements is that we have different types of representatives on our board. So, I make sure we are meeting that requirement; I keep track of them in our board minutes."

In addition to having a diverse advisory board, Perkins also acknowledges the need for quality CTE instructors. People in an industry typically earn more than teachers, so Amy explained that it is difficult to recruit qualified instructors to teach CTE. She added, "Right now in Texas, we've been working with our legislatures to be able to give teachers that come from the field like nursing or welding more credit for their actual

work history.” She believes that enabling professionals to earn more for their work experience would make it easier to recruit much-needed instructors.

Along the lines of developing and maintaining quality programs, Amy said, “Even more important Perkins V is trying to identify the barriers that might keep a student from being successful.” She provided an illustration explaining that as Director, she would review the data to see how many girls received a welding certificate or evaluate why there are only three girls enrolled in the automotive program. Then she would take that information and attempt to assess why there is a lack of girl participation, noting if it is because of unequal access or a lack of knowledge about the industry and what those career pathways offer. Amy commented, “A big project now that Perkins V focuses on looking at how we’re retaining students which they refer to as concentrators.” She explained that understanding why students enroll in specific programs and not others help improve student retention.

April—CTE Administrator (High School)

April is the Dean of Academies at a Central Texas high school. Although she has served in this role for 4 years, she served in other positions for the school district for 21 years. The school created her position to align the CTE program with how other school departments, such as the English, Science, and Math departments, were structured. With her new role, each department would include an administrative position that manages and supervises its staff and activities. She is responsible for overseeing 25 CTE instructors and a 20 member advisory committee in her current role. April’s interview was conducted in late January 2021, and it lasted approximately 45 minutes.

Perception of the personal role. When asked how she perceived her role as it related to the CTE programs her school district offered, April explained that she viewed her role as “their liaison because the CTE teachers are self-sufficient and all work as a team.” She focuses a great deal of her time and efforts ensuring that incoming high school students know the CTE programs they offer and “getting the word out . . . trying to recruit” them to participate.

Perception of the advisory committee. In addition to recruiting future students, April coordinates the activities for a diverse group of people that serve on her school’s advisory committee. April reported her advisory committee consists of her CTE instructors, business partners, and community members. She explained how the advisory committee has helped the school accomplish many milestones, such as starting the school’s store. She noted the advisory committee “helped us brainstorm some ideas.” Also, the advisory committee assisted the school in purchasing a trailer for them to transport all the goods they sell at the football games. April said, “After we opened the store, they saw we needed the means to transport the goods.” She further explained that one of the committee members “was willing to help us, and they bought us a trailer.” She acknowledged that the advisory committee “helps with that business side that we don’t generally have as school people.” Once the store started operations at the football games, customers soon began requesting to make purchases using credit cards. An advisory committee member led the efforts to gain the necessary approval, acquired the equipment, and implemented the process to allow the mobile store to accept credit card payments. April strongly believes the committee knows what their programs’ priorities

are, and they help them think through the process and implement different programs and practices.

April explained the advisory committee is very involved in identifying and explaining which industries in their local community need employees, what type of training students need to be successful in particular fields, and what employers are looking for in future employees. April noted the advisory committee is involved in developing and designing curriculum for CTE programs. However, she acknowledged that she is not engaged in that part of the process.

Practices implemented. In addition to the advisory committee's support in helping launch the school store, purchase a trailer, and begin accepting credit card payments, April explained they must have qualified instructors for her CTE programs to be successful. They must also have students enroll in the programs. Each year, except for years limited by Covid restrictions, April and the various CTE programs have hosted a spring open house with all the academies represented. Students do presentations on the type of work they have done over the year. They also have junior and senior ambassadors that go to the middle schools and do presentations on their work to help inform and recruit students. "Kids sign up for the classes that they like and that meets their needs, their likes, and what they want to be engaged in." She further reasoned that students have many competing interests such as athletics, band, choir, or debate, so her CTE programs have to identify creative ways to attract and maintain student participation.

Impact of CTE on education outcomes and employment opportunities. April believes CTE programs positively impact the lives of her students. She said CTE

programs prepare students for their futures. When her students graduate, she explains, “they’re ready for the real world.” April further explained that the examples she shared of the advisory committee’s involvement in helping them achieve some of their desired goals not only improved the CTE programs her school offers, but those efforts also contribute to her students’ learning. The school store allowed her CTE students to learn how to operate a store, process credit card payments, and deal with customers, building much-needed soft skills essential for business success.

Understanding of Perkins legislation. April’s fundamental understanding is Perkins V provides the funding that pays her salary, which makes her a supporter. She also knows she must have various groups of people from education, industry, and the community as committee members. April noted that she is required to submit documentation of department meetings and advisory board meetings annually to the CTE director. So, while she may not be aware that this is a Perkins’ requirement, she does recognize the importance of having a diverse advisory committee.

Andrea—CTE Advisory Committee Member (High School)

Andrea serves on April’s CTE advisory committee, representing Andrea’s second year on this advisory committee. She served 3 years on another CTE advisory council in the same district. Although she joined this advisory committee 2 years ago, Andrea has been associated with the school district for more than 26 years, including serving as Interim Superintendent for the district and other administrative roles held throughout her tenure. I interviewed Andrea in early February 2021, and the discussion lasted 35 minutes.

Perception of the personal role. When I asked Andrea about her perception of her role as a member of the advisory committee, she expressed her presence as serving three functions.

I think my role, first of all, is probably threefold. One, I am a member of that committee because I have an interest in looking at where our high schools are going for the future, so that's one of the roles. Secondly, my role is to look at the research and see what CTE programs are doing and how they are innovating throughout the campus's tenure and the students' opportunities regarding real-world training. Thirdly, I think my role is to encourage those teachers and staff who are working with students to continue to grow and be diligent in identifying research-based practices.

She explained that she supports the programs by attending the meetings to hear the various programs' reports and presentations on their progress. Andrea said she serves as a mentor to other members of the advisory committee. She further explained, "My role also includes understanding what's happening in the marketplace and what is happening for students who need to graduate with not only a high school diploma but also a certification." Andrea commented that she also believes her role is to understand what the market is telling them is necessary to meet present and future employment needs or the skills that students need to prepare to move out into the real world.

Perception of the advisory committee. During our discussion about Andrea's perception of the advisory committee's effectiveness in developing and implementing CTE programs, she explained the committee is very involved in assisting the school in achieving its desired program goals and objectives. She noted that "the programs, teachers, facilities, and all those things are necessary for CTE programs to thrive." She explained the advisory committee focuses its attention on making sure they adequately address those areas. Andrea further explained what contributes to the board's

effectiveness saying, “Advisory committee members from across the city have a wealth of knowledge about hands-on, real-world experiences and the kinds of things that kids need to be prepared for.” She added this broad base of community knowledge helps the school implement successful CTE programs.

Practices implemented. Andrea offered examples to illustrate the involvement of advisory committees in the school’s CTE programs. As she mentioned previously, ensuring CTE programs have the proper facilities is a priority for the committee. She said, “We do all kinds of innovative things to provide facilities . . . we use campuses that are closed and retool them and reopen them.” She further explained the equipment and facilities for some of the CTE programs are expensive. When asked about the areas, if any, she believed the school could implement or modify to improve the CTE programs, she responded with some suggestions: “Here again, it’s facilities, but it depends on what the program is, and some of them require a lot of equipment to make it happen; we seek all kinds of innovative funding to provide for the equipment for kids.” Another focus area for the advisory committee is “to encourage other community members to get involved in offering internships.” Allowing students to participate in those real-world experiences is instrumental not only to the program’s success but also to their learning.

So, not only is it encouraging to hear that kind of feedback from employers, but I also attend the summer workshops when all the kids are getting ready to go out for internships and to listen to employers and their excitement about having students coming to their businesses.

Andrea also noted the vital role that other programs play in providing CTE participants services to learn and grow.

When they do provide entrepreneurial efforts for students, when they decided to go to the Skills USA competition and the kinds of things that they encounter at

that competition, I think that's part of the practices of what we want kids to get out and be able to see.

She believes the practices the CTE programs implemented have improved the quality and success of the programs.

Impact of CTE on education outcomes and employment opportunities. When asked about her perception of the effectiveness of CTE programs on education outcomes and employment opportunities for students participating in these programs, Andrea said, "CTE programs diminish the number of dropouts that otherwise might not find a reason to be in school." She believes CTE programs help students find a place to belong and encourages them to attain their high school degrees.

At the end of each year, the school typically has a celebration honoring those who have completed CTE programs and received their certifications. She said, "It's motivating and inspirational because it really saves kids. Kids will tell you their story about how the CTE program is making a difference in their lives." Andrea noted CTE is also a vehicle or a launching pad for students to do other things: "They are CTE students, but they do a variety of other things. They're able to go ahead and get an academic degree, in addition to their certifications, so I think that stimulation and motivation is encouraging."

So, in her opinion, students benefit from participating in CTE programs by attaining certifications and by helping students identify their passion and the career paths they want to follow. She explained, "Some of our other students who are in programs, like the nursing program they transition to other health care agencies, and many of them go on to get their degree." Andrea believes CTE positively impacts the lives of students.

She said, “I do think what we wanted out of it was for them to impact their future and make a difference in what they do in life; I see that happening.” Seeing the CTE impact firsthand motivates Andrea to continue to serve on the advisory committee and advocate for the students and CTE programs.

Understanding of Perkins legislation. When asked about her knowledge of the Perkins V legislation, Andrea commented that the district’s CTE Director reports regularly on the school’s progress towards meeting those requirements.

She keeps us informed and gets us to understand what the funding is like, where it’s coming from, the kinds of things we need to be aware of, looking at programs for the future, and what kind of funding sources are available to us. So, she’s excellent at keeping us advised on those issues.

Andrea explained her perception of how well her school’s CTE program aligns with Perkins V’s legislative requirements.

Well, I think it aligns, but I think one of the things when I look at it district-wide is a gap or a need for us to continue finding the teachers for those CTE programs because there is a set of finite industry-related skills an instructor has to have to integrate CTE into the curriculum.

Despite being aligned with Perkins V’s requirements, Andrea feels there is always room for improvement. Finding qualified instructors to teach CTE courses and ensuring students have the facilities and equipment to be prepared to meet the selected career path’s needs are areas that she feels the advisory committee will continue to focus.

Anthony—CTE Instructor

Anthony is the CTE Career Prep instructor as part of the Academy for Business and Marketing for one of the 5A high schools in this district, serving in this role with this district for 7 years. Before entering education and becoming a teacher, Anthony worked

in the business industry for over 15 years. I interviewed Anthony in early February 2021, with the conversation lasting for approximately 32 minutes.

Perception of the personal role. In response to the question of his perceived role regarding the district's CTE programs, Anthony said, "I guess my role, I feel, is to encourage students to get into CTE programs and, hopefully, I'm a teacher that would also influence or encourage and support." In addition to recruiting students, he explained, "I try to reach out and create partnerships with our community to help [students] start to bridge and make that connection into the career world." He further elaborated by describing ways he supports the CTE programs' delivery saying, "I help support our programs through my participation in some organizations or clubs. For example, we participate in Skills USA to showcase our students' talents and skills. I also bring in a lot of guest speakers from different areas." Engaging a diverse group of speakers representing various industries allows students to hear from professionals about potential career pathways.

Perception of the advisory committee. Anthony reflected on his perception of the school's CTE advisory committee. He explained, "I know some of them have opened up their companies for the internship program, and they bring on interns as well as help place other interns or partner with other businesses that they have relationships with." He also discussed some of the advisory committee accomplishments.

I even know on the business side of it for our classes, we have a school store which we've developed. A couple of members were able to support us financially, and we were able to buy a spirit trailer and had it wrapped, and we take that out to our football games or different events like that, and the students get to sell school spirit.

Anthony said that some advisory committee members engage with his students, noting that “some of them are on my guest speaker list.” He hopes that by bringing in guest speakers, students will have an opportunity to know more about potential career paths and begin developing relationships with prospective employers.

Practices implemented. Understanding what practices contribute to CTE programs’ success is essential for building and sustaining the programs and improving the students’ learning experience. Building and maintaining successful CTE programs involve recruiting students and teachers who believed in the power of CTE. Anthony noted, “So [the] biggest thing I think is educating the students and continuing to educate teachers and finding teachers that buy into CTE.” He also said, “I think [CTE Director] does a good job of . . . starting to educate eighth-graders coming into high school and starting to [develop] a career focus.”

Anthony discussed the practices their district implemented that have led to the success of their programs. He explained, “Number one I think . . . is finding a student that has achieved success or turned their life around, whatever it is using those as examples to future students.” Anthony believed that students who achieved success from participating in CTE programs are the best advocates for CTE and the impact those programs can have on an individual’s life.

Anthony also believed the benefits students receive from participating in CTE programs were instrumental to their success. He said, “I know, one of the big things is our students earn certificates.” He further explained students earning certifications could graduate and get high-demand, potentially high-wage earning jobs. He cautioned that building and expanding their CTE offerings too fast could impact the success of the

program. He said, “Maybe sometimes wanting to be too diverse, spreading ourselves too thin and not having enough students and teachers to support those programs.” He also mentioned another factor that could impede growth and expansion efforts “we’re [also] limited with space.”

Impact of CTE on education outcomes and employment opportunities. Anthony explained one of the most rewarding aspects of his role as a CTE instructor is helping students find career pathways. He said, “I’ve seen success stories that students were kind of lost and not focused, but then when they get into a program, they come around. Then they really dig in, and they kind of find themselves.” He elaborated on his experience with students. He said, “They’ll tell me their freshman year they didn’t have much focus, but then, let’s say they got into our automotive program and they’re doing a lot of hands-on things, and just that hands-on learning makes all the difference.” Anthony believes CTE changes lives. He commented, “It’s just the drive and experience that they need to be successful, and it’s really neat when they find themselves. So, just seeing lives changed and hearing the students talk about it.”

Understanding of Perkins legislation. When asked to discuss his knowledge about the Perkins V legislation, Anthony admitted that he did not know the requirements.

What I have seen in the studies and research is that when students are involved in programs, their attendance goes up, and their overall GPA goes up, similar to kids that are in activities like athletics and [other] extracurricular activities. It seems when they have a purpose and drive, they seem to have greater achievement and success.

Despite not having specific knowledge of Perkins V, Anthony understands the impact that CTE has on its participants’ lives.

Adam—CTE Administrator (Academy)

Adam serves as the Dean of Academies for his school's CTE program. He oversees a uniquely structured academy offering CTE courses to students within the district and students from neighboring school districts. As a professional, he brings 27 years of industry experience and 5 years of higher education. I interviewed Adam in late January 2021, with the conversation lasting for 1 hour and 17 minutes.

Perception of the personal role. When asked how Adam perceived his role in the CTE programs the district offers, he explained that he oversees the four academies offered on his campus, including welding, robotics and electronics, construction science, and architecture and drafting. Adam further explained his programs do not teach subjects that require standardized testing. He elaborated by noting how the CTE programs his campus offers correlate to the traditional high school curriculum.

My focus is on the industry-based learning that we teach our students. Our classes are half-day. Students attend their home campus the other half of the day to get their required courses for graduation. We have students from our district, and we also have students from eight different ISD that attend [the academy].

He also described the unique structure of his campus.

Surrounding districts have students come, and all the participating school districts pay a fee to have their students participate in the programs we offer. The funds come out of the CTE budget of the participating district, and that is how we're supporting our programs.

Adam explained why this program's structure appeals to other school districts.

CTE programs are expensive to run; you can't run a welding program at the level without the support. I think that's what makes other schools wary of going into this type [program]. So, our smaller districts that don't have the ability or resources to purchase the equipment can participate.

He noted that his academy is nationally recognized as one of the first schools to have this distinct program structure.

Perception of the advisory committee. When asked to describe his perception of their advisory committee's effectiveness in developing and implementing CTE programs, Adam explained, "I need outside industry people to tell me what skill sets they need for their new employees. My job as an educator is to implement a curriculum around their needs." Adam then described the composition of his advisory board.

I have an executive board that is primarily made up of many executives in this area or people who helped start this program. About eight or nine have been on the board since it started. Then there are another 10 or 12 that are, just move in and out. So, we have several business owners and vice presidents of local industry. Many of them are very active in the [local] chamber. They know what's happening or what's coming to the community in the next 2 years. So, they want us to move in the direction that supplies the need for the local workforce. If I need something, I honestly just have to turn to my board, and it'll show up.

He also shared an example of how his advisory committee's involvement improved the CTE programs they offer.

We talked about building tiny homes, and I had one gentleman call me and said, hey, I love that idea. He said that besides what we do in masonry, we also have a construction business. Then he said, "I think we can provide you everything you need as a donation."

Adam acknowledged that his advisory committee is instrumental in assisting him in launching new programs and making things happen that improve the quality of his campus's CTE programs.

Practices implemented. When discussing the practices his academy has implemented, Adam explained one of the motivating factors for opening the academy included the need "to have a local entity that would help drive local students to stay in the local workforce." He then explained ways he supports CTE programming delivery in his district. He noted his role involved working with local industry people. "Local business leaders speak to our students. We have [mock] interviews that we set up for my seniors

planning on going directly to the workforce.” Adam noted they prepare their students to enter the workforce or continue with their education.

With regards to course content, Adam added, “We work with our students in their academy, and we relate a lot of what they’re learning in those courses to what they are taught.” He explained that program instructors work together to integrate their diverse subjects into a core curriculum for their CTE programs. He expounded, saying, “We try to tie in our academics and all of our academy courses and make it relative to what the students are trying to learn.” For example, Adam noted, “We have a metallurgy course, and part of it is taught in the chemistry section. So, we like to tie that in at the same time to what we have the students do.” He argued that students must be able to make connections with real-world circumstances.

Adam also discussed the importance of maintaining reasonable enrollment levels. He explained how their programs try to preserve small class sizes to enable students to work and learn. He noted the importance of ensuring all students can access the necessary tools and equipment to learn the essential skills.

Impact of CTE on education outcomes and employment opportunities. When describing the effect of their CTE programs on participant education outcomes, Adam said, “I believe that my programs keep kids in school. My kids pass their finals because they see the relevance of what they’re doing.” He explained that CTE prepares students for their futures.

The vast majority of the jobs in the United States require much more than just a high school education. They require some type of industry-based certification or post-secondary education, whether it’s a one-year, two-year, or four-year degree.

Adam further explained that CTE enables students to graduate high school, making higher salaries than college graduates.

I'm talking about these kids who go in at 18 to 20 years old, and they can be making \$45 an hour. Most of them make about \$24 an hour, but they're making more than what you made coming out of college.

He often tells his students, "I'm not giving you skill sets to go get a job. I'm giving you skill sets to go get a career." In addition to increasing retention rates, Adam believes CTE improves employment opportunities for his students.

Understanding of Perkins legislation. According to Adam, Perkins V included requirements that increased focus on special student populations. He explained, "Industry-based certifications is a big part of it so that students are job-ready to go into industry." He also noted, "All of my academies have industry-based certifications that we offer to all of our students." He then explained that while CTE programs require multiple funding sources to be successful, Perkins V provides federal funding to support the programs they offer. Adam also explained their desire to increase the number of CTE concentrators in their programs.

The fact that we're probably right at 90% plus of our kids take a CTE course, I think where we miss out is getting the students who do not stay in a particular domain of CTE. They do not continue with the two and three courses sequencing.

So, he acknowledged that this is one area that they are working to improve.

Austin-CTE Advisory Committee Member (Academy)

Austin is a founding member of the academy's CTE advisory committee, having served since the program's inception. He is also a business professional who serves as the

President of a local engineering contracting company. I interviewed Austin in late January 2021, and the discussion lasted 1 hour and 18 minutes.

Perception of the personal role. When asked how Austin perceived his role related to the CTE programs offered on the academy's campus, he recalled the early process involved with launching the academy.

It was certainly a little different animal. The business community worked closely with the CTE director and the superintendent to get the academy going. We raised a lot of money, and we helped them work on developing the curriculum. They did a great job of listening to us saying, "here's the kind of graduates we need coming out of that program." So, it was this great relationship. It broke some barriers between business and education, connecting these two worlds speaking totally different languages that work on different timelines.

Austin continued sharing how his role evolved. He said, "In the very beginning, it was everything from we were designing the facilities and the systems including mechanical air conditioning and plumbing construction, which happens to be the business I'm in."

Austin noted that now his responsibilities also include oversight of the school's CTE programs. He prepares presentations that highlight the impact of CTE programs on student earning potential and the benefit to the community. His presentation includes charts and graphs that compare specific industries requiring college degrees, such as an attorney, mechanical engineer, and English professor, and their earning potential to students' career paths graduating from his academies with industry-related certifications. The data compares the cumulative earnings of the college degree professionals with that of a certified pipefitter. Austin's data illustrates the ability of a pipefitter to earn just as much and, in some cases more, than the professions requiring a college degree.

Austin also mentioned that he provides presentations to the students explaining his company's work and giving them a broader vision of a potential career pathway. He

helps students with building resume writing and interviewing skills. Austin's company benefits significantly from his participation in CTE. He shared data from his most recent CTE presentation stating, "The essential workers in our community are tradesmen." He added, "Our company alone hired 50 people since last January." Austin admitted that many business leaders' involvement is in part motivated by their future workforce needs.

As great as our philanthropic arm might sound, we need a pipeline of employees working here in this community. So, we love getting involved because we can find out who those students are that we think could be successful, and we could start recruiting them for internships during the summer.

While Austin's company has a vested interest in seeing these young people succeed in their CTE career paths, he truly believes that young people's knowledge and skills from participating in CTE improves their employment opportunities and earning potential.

Perception of the advisory committee. Austin described his perception of the advisory committee, saying, "It is the most effective one I have ever been on, and I have been on many others." He explained once the academy's programs launched, they initially drifted back to their traditional roles where the district runs the programs like a school and the business partners "get bored because they don't have a long-term vision that you need for education." He continued, "It was a great opportunity for us to kind of get back together with the superintendent and say we really need a little different structure." Austin compared his experience on this advisory board with other committees.

Other advisory boards I've been a part of you walk in, and you basically spend a few hours while they tell you how great they're doing, and everybody nods their head. They never really asked for any feedback. Then everybody goes their separate ways, but that's not us. We want to be very involved, and we want to hold the director accountable to a certain set of goals and objectives.

Austin argued the difference is “having people sitting around the table that are our major employers in town and make decisions about things happening in the community.” He explained the effectiveness of this advisory committee.

I feel like more so than other advisory boards, we are part of setting the goals and objectives of the programs. Just like in business or anywhere else, when you engage those involved in setting the goals, you get buy-in. You get more people involved in the process.

He attributes the advisory committee’s effectiveness to the “high-level buy-in at the superintendent level.” He stated, “I hired a bunch of their students, and I knew many deficiencies those students had that we hired, and we had to correct them. So, I was ready to start giving them advice and feedback.” He noted how his ability to give feedback is vital to improving the programs they offer.

Practices implemented. While explaining the practices implemented, Austin reiterated how much their practices developed over the years. The earlier years focused on developing and launching the academy.

In the way this one was set up initially, it was everything from designing the facilities and the systems, which happens to be the business I’m in. So, we put together you know the plan and everything we needed. We did the fundraising. We followed all the proper purchasing and channels, [we] got the building constructed and ready to go, and ready to open. We worked on the curriculum together, discussing, you know, what was expected, what we needed as employers to come out of the program.

Austin argued that his role and priorities shifted to recruiting and ensuring organizations seeking qualified employees are on their advisory committee. He said, “So, I love that we have that high level of interaction between real businesses and people that hire real people in these students.” He explained, “We want to get more of those guys tied into

education anyway. I mean, this is a great way for them to see the value of investing their time and energy.”

Austin further explained that recruitment also includes attracting students and encouraging them to participate in CTE.

At the advisory level, [we discuss] whether we should really be targeting parents. Would the parents be the ones to tell their kids, hey, you need to do this. [Our Dean of Academies] goes out and talks to the guidance counselors at all the high schools. So, now you’re dependent on that guidance counselor sitting down with the student. They’re looking at the kids’ transcript, thinking they’re never going to college. So, they say, hey, have you ever thought about drama. Instead, we need to find out hey you know you’re mechanically inclined, you like working with your hands, you are great at working in teams; so, you might be a good candidate to go into construction science.

Austin noted that helping school counselors see the value in students participating in CTE could also improve enrollment rates.

Impact of CTE on education outcomes and employment opportunities. When explaining the impact of CTE on students, Austin said, “[Students] within certain programs could walk into an employer and say I have these skill sets, I have this certification, and I’ve got this training. They get hired, and they would make three or four times more an hour.” Austin further explained how CTE differs from traditional education.

The reason you’re talking about kids getting disinterested [is because of] the way we teach high school. The people who decide how we teach at those levels are all academically minded college graduates, and they’re creating a system that emulates the best way they learned. Rather than sitting there [discussing] theorems that are never going to connect with them, students need to know how it applies to them.

Austin argued that CTE enables students to make those meaningful connections between what they are learning and how it potentially impacts their future.

Understanding of Perkins legislation. When asked to share his knowledge of the Perkins legislation, Austin explained, “We go to Washington, DC every year, and that’s one of the things we end up talking to legislators about and trying to advocate for Perkins.” He acknowledged that he is aware of the funding aspect, but he does not know the specifics of the legislation and what it requires as it relates to the students.

In the following section, a summary of Case 1’s data is presented. The summary is an analysis of the data collected from CTE Program A’s participant interviews. The data enabled the emerging themes shared among all the participants to be identified and analyzed.

Case 1–Analysis of Common Themes

Analysis of the participants interviewed from CTE Program A revealed three common themes: highly engaged and involved advisory committees, recruiting is key, and CTE improves employment opportunities and prepares students for the real world. While other factors that each participant believed were essential in their school’s CTE programs’ success, they shared three themes that emerged among two or more of the participants.

Highly engaged and involved advisory committee. Advisory committees are formed and operate in many different ways. CTE Program A consists of four schools (two high schools and two academies), each with active, independent advisory committees. According to the participants interviewed for this case, each believed their advisory committee is highly engaged and actively involved in implementing CTE programs. April and Anthony both shared how their advisory committee helped launch

the school store, purchase a trailer, and begin accepting credit card payments. Adam and Austin explained how their inaugural advisory committee helped launch their academy by designing the building, securing financing, and developing the curriculum. Active and engaged advisory committees effectively bridge the gap that often exists between education and industry.

Amy, April, Andrea, and Austin explained that advisory committee members represent a diverse community sector and include many different businesses from various industries and professional organizations. Their expertise provides a wealth of knowledge on local employment needs, the type of training students need to be successful in particular fields, and what employers are looking for in future employees. This information is instrumental in determining which programs may be necessary to meet local employment needs and what needs to be included in the curriculum to prepare students for those high-demand jobs.

Recruiting is key. All participants expressed the importance of engaging in recruiting efforts to improve CTE programs' quality and increase participation. One feature of this district's recruiting plan focuses on hiring qualified instructors to teach CTE programs and attracting engaged students to register for the courses. April and Anthony explained how they focus a great deal of time on educating and recruiting students to participate in CTE programs.

Another vital piece of their recruiting plan involves building a team of people who believe in the value of CTE. Their district offers previous and current CTE students opportunities to serve as ambassadors and visit potential future participants to explain the benefits of enrolling in CTE programs. Anthony suggested prior CTE participants who

achieved success from participating in CTE programs are the best advocates. He explained previous CTE participants know firsthand the impact such programs can have on education outcomes and employment opportunities. Austin discussed the possibility of marketing to parents to increase CTE enrollment rates.

Engaging CTE instructors and students is just one aspect of the district's recruiting efforts. Andrea and Amy explained how they advocate for CTE in the greater community to encourage businesses to offer internships. Andrea and Anthony expressed the need for students to participate in quality internships. Developing community partnerships with companies that provide internships enables their students to gain invaluable real-world experience. Austin explained the value of recruiting business leaders to serve on the advisory committee. He further explained that business leaders know what talent and skills their organizations will need and can help ensure the CTE programs align with those needs. Amy also shared her community efforts advocating for legislation to allow schools to better compete with the salaries business professionals earn versus CTE instructors. She argued such legislation would improve the district's recruitment efforts to attract quality CTE instructors. Many may view recruiting as an effort focusing on attracting instructors and students; however, developing strategies to engage the greater community, including legislative representatives, also contributes to the quality and success of CTE programs.

CTE increases employment opportunities and prepares students for the real world. Preparing young people for careers involves providing opportunities for them to both grow emotionally and gain technical experience. All participants interviewed expressed their belief that CTE changes students' lives. Amy, Anthony, Adam, and

Austin explained students benefit from participating in CTE programs by attaining certifications that qualify them for high-demand, potentially high-wage earning jobs. Amy noted CTE “helps young people find their place,” builds confidence, and helps them make meaningful connections between their education and careers. April and Austin explained those students graduating from CTE programs are “ready for the real world.” Andrea further explained that students participating in internships gain real-world experience instrumental to their success and the student’s learning and preparation. In the following case, CTE Program B, the district and each interview participant is presented.

Case 2–CTE Program B

Based on UIL classification, CTE Program B is a 5A school district. According to the Texas Academic Performance Report for the 2019–20 school year (TEA, 2020a), this district has an estimated 4,300 total enrolled student population (including grades from early childhood education to Grade 12), with 47.1% identified as female and 52.9% as male. Of the total enrolled student population, 67.2% were deemed economically disadvantaged with an ethnic distribution that included 48.7% Hispanic, 45.6% White, 1.9% African American, and 3.8% representing other races. The same report showed approximately 700 high school students enrolled in a CTE program representing 55.5% of the district’s secondary student population. The total percentage of students enrolled in CTE programs for this school district also exceeded the average enrollment of 50.8% reported for all students participating in CTE programs for Texas.

CTE Program B district’s budget totaled more than \$57 million for the 2019–20 academic year. Expenditures for career and technical programs totaled approximately \$1.6 million, representing 4.05% of all general fund expenses for the district, which

approximated nearly \$40 million. While the percentage budgeted for career and technical programs decreased from 4.66% of general fund expenses in the prior year to 4.05% for the 2019–20 period, the per dollar amount invested per student for CTE programs increased from \$320 for the 2018–19 reporting period to \$370 per student.

As shown in Figure 12, CTE Program B includes CTE courses offered at the high school and middle school. The program has one CTE advisory committee for the entire district with 48 members. According to the district’s 2020–21 CLNA, the CTE program consists of 12 state-approved career clusters. There are 16 CTE instructors at the high school and four teachers at the middle school level. A licensed instructor employed by the school district teaches most CTE programs except for their EMT program, which runs the local Emergency Medical Services (EMS). The following section presents the data reported comparing CTE Program B’s performance indicators to state measures.

Case 2–CLNA Document Review

In the 2020–21 CLNA, CTE Program B reported 12 career clusters with 361 CTE learners enrolled. According to the labor market alignment data, the district rated health science as its number one career cluster with 16.6% of its CTE learners enrolled. The science, technology, engineering, and mathematics cluster was second with 14.4% of its CTE learners. Agriculture, food, and natural resources ranked third with 14.1% of its CTE learners enrolled. Law and public service, hospitality and tourism, and information technology ranked lowest with 0.3%, 0.6%, and 4.4% respectively of its CTE learners enrolled in those noted career clusters.

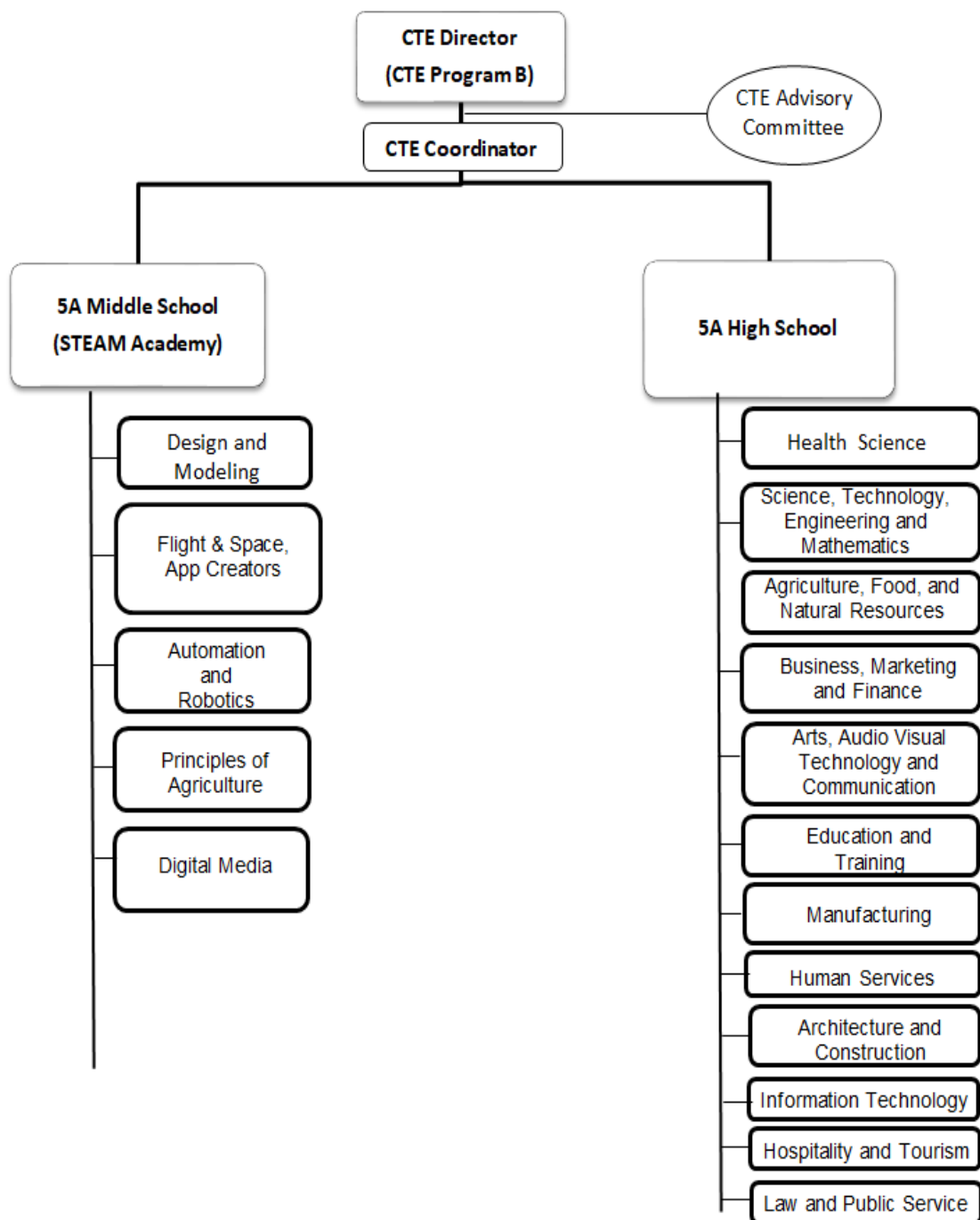


Figure 12. District 2–CTE Program B design structure.

In Table 5, Perkins V Performance Indicators–CTE Program B, the data revealed this district’s CTE program met or exceeded accountability indicator targets for the

district's CTE learners in four areas: 4-year graduation rate noting 98% for the district compared with 97% for CTE learners statewide, academic proficiency in reading/language art with 61% reported for the district compared with 58% statewide, 74% for the district in academic proficiency in science indicator compared with 60%, and finally, reporting 35% for the program quality–CTE completer indicator compared with 32% for CTE learners statewide. The CLNA also reported two measures that were within 2% of the accountability indicator targets for the district's CTE learners, including academic proficiency in mathematics at 45% for the district compared with 47% for CTE learners statewide and post-program placement with 70% for the district compared with 71% statewide.

Table 5
Perkins V Performance Indicators–CTE Program B

Indicator	Name	CTE Learners	
		Statewide %	District %
1S1	4-Year Graduation Rate	97	98
2S1	Academic Proficiency in Reading/ Language Arts	58	61
2S2	Academic Proficiency in Mathematics	47	45
2S3	Academic Proficiency in Science	60	74
3S1	Post-Program Placement	71	70
4S1	Non-Traditional Program Concentration	50	40
5S1	Program Quality–Attained Recognized	8	2
5S4	Program Quality–CTE Completer	32	35

Note. Reproduced and used with permission from School District 2.

CTE Program B reported performance measures lower than statewide on 2S2, 3S1, 4S1, and 5S1 indicators; however, similar data showed CTE learners outperformed non-CTE learners for 1S1, 2S1, 2S2, 2S3, 3S1, and 5S1 indicators. Despite falling below statewide indicators on four measures, the district reported higher representation when compared to the total student population for the district's male and White student populations. In the following section, the interview analysis of CTE Program B's participants is presented.

Case 2–Interview Analysis

Case 2 comprises three participants. The participants included the district's CTE Coordinator, the Coordinator of the school's EMT program, which also serves on the advisory committee, and an instructor for the middle school's STEAM Academy. Participants were assigned a pseudonym. The pseudonyms selected were names beginning with the letter assigned to this school district. So, the names of all participants of CTE Program B also started with the letter B. District B's 48 member advisory committee oversees activities for the high school and middle school CTE programs.

Brett–CTE Administrator

Brett serves as the CTE Coordinator for District 2. He has served as Coordinator for this district for 2 years. Before becoming the district's CTE Coordinator, Brett served as the CTE Ag instructor for 15 years. Brett's interview was conducted in mid-December 2020 and lasted approximately 55 minutes.

Perception of the personal role. Brett provided context on how he supports the programs' delivery when asked to explain his perception of his role regarding his district's CTE program.

As the CTE Coordinator, I kind of oversee all of the CTE program pathways that we have; we have 12 here. Oversee the day-to-day functions of them, do teacher evaluations, look at budgets and expenditures. I don't have the final say-so on that, but I'm a part of that process as well. I answer questions, do approvals, and listen and give advice about CTSO organizations.

He further explained how his experience had served him well in his current role.

Being a CTE teacher, I have a lot of, just a lot of experience being in a CTE class for the 15 years that I was an Ag teacher, and I use that to give guidance and help our CTE teachers. They have me doing their observations because I understand what a CTE class should look like. A welding class is not going to be the same as a math class or a science class where everybody's sitting at the desk taking notes. To somebody that's not used to being in that kind of setting or just a CTE setting in general, they're not going to understand the organized chaos. They may not understand what is going on in a CTE classroom. There's so much hands-on activity while the learning is going on instead of being notes or lecture-based.

His previous experience enabled Brett to connect with other CTE instructors and better relate to the classrooms and curriculums' structure.

Perception of the advisory committee. Brett shared his perception of the district's advisory committee's effectiveness in developing and implementing CTE programs. He said, "I think your advisory committee's main role is to make sure you are meeting the needs of the community." He further explained how the advisory committee supports the delivery of CTE programs.

We have a pretty large advisory committee, and we try to take their opinions. We try to take their feedback and their criticism. We try to use that to help mold and modify our programs to make sure our students are meeting the needs of the community.

As an example, Brett shared an experience where the advisory committee's feedback was instrumental in the district making some changes to their CTE curriculums.

Our advisory committee told us 2 years ago that we just really have a hard time with our students and employability skills. I had a meeting with some of the bigger companies here in town, and they were saying we really want to hire your kids, but they don't; they just lack employability skills. We went to the CTE administrator conference, and they talked about how communities are telling us about employability skills and the lack of. So, we came up with an initiative on improving employability skills, and we're trying to teach our kids what that means.

When asked to describe the process the district uses to recruit committee members, Brett explained how members are recruited.

When it comes to recruiting advisory committee members, we leave that to the teacher of that program pathway to make the initial contact. They are going to have connections with whom they do business with, who they're associated with.

By allowing CTE instructors to make those personal connections with the business community, Brett feels that the instructors can benefit more from those relationships.

Practices implemented. When explaining the district's practices implemented to ensure their CTE programs' success, Brett elaborated on how they have handled the challenges Covid restrictions created.

So some of our classes are virtual only, and some classes are virtual with a lab. They vary by class or by program pathway. For example, [in] our welding class, we have labs every other week. So, the students that are virtual will come in after school, [and] they'll work in the welding shop. Having those labs after school, those kids feel like they're coming to a safe environment [because] it's . . . low numbers in there. There you may only have three or four students for that afternoon.

Brett also noted they directly correlate programs and practices their school implements with the community's needs. He expressed the importance of having advisory committee feedback and community involvement, saying, "if you have enough community members telling you, 'hey, we need this,' it's going to go a long way to adding that program."

When asked the question on what he believes makes CTE programs challenging to implement, he responded, “Two things—cost and finding somebody that’s certified to teach the class.” He noted some CTE programs require a lot of equipment and are consequently expensive to implement. Brett further explained the challenges the district faces with recruiting good instructors to teach their CTE programs.

So, if you find somebody that can teach a computer science class or a computer coding class, why are they going to come to a school and make \$40,000 or \$50,000, when they can get a job with the most basic coding skills, earning \$75,000 to \$90,000.

Brett reiterated the importance of finding and recruiting quality instructors because he believes they were vital to their CTE programs’ success.

Impact of CTE on education outcomes and employment opportunities. Brett emphasized the value of CTE programs on improving education outcomes.

Our students that are in CTE classes do perform better in the classroom, and they perform better on standardized testing. I know one, and it’s not written down as a fact, but I just know in my heart it is because our CTE classes do such a great job of being supplemental to the core classroom.

He further expressed his belief that the factors that attributed to improved education outcomes are part of how the programs are structured and how the content is delivered.

He said, “I’m a firm believer that CTE classes should be providing supplemental education to those core curriculum classes. When they get to apply it to life is when they really learn what’s going on.” Brett also explained the impact of CTE on creating a sense of belonging. He said, “I think every student needs a niche, and they need their place of belonging.” He believes “getting students involved and making them feel like they belong helps. They take a lot more pride in their school when they’re involved in something and not just here going through the motions every day.”

When discussing the impact of CTE programs on employment opportunities, Brett said, “Every program pathway here . . . has some type of certification that’s tied to it.” He noted he often receives phone calls from employers seeking qualified applicants.

We do a good job of recruiting kids when employers call. And the reason I say we do a good job is because that kind of falls on my plate. I help them find part-time jobs, but most of these people calling me are calling about students who are about to graduate. They want them to start training while they’re in high school, and that way, they can be full-time come the summer.

He argued that certifications qualify some students for high-demand employment, good-paying jobs when they graduate from high school.

Understanding of Perkins legislation. When asked how he perceives his district’s CTE program aligns with Perkins V’s legislative requirements, Brett explained, “We know we match it pretty close because we work on that Perkins grant every year.” He added that he spends a great deal of time gathering data and compiling data to complete the grant application.

Brooke—CTE Advisory Committee Member

Brooke serves in a dual capacity as an advisory committee member and coordinator for the district’s EMT program. As a professional, she serves as a captain for the community’s EMS. She noted, “I’ve been a paramedic for 12 years serving in the commanding role for 6 years.” Entering her fifth year as the DSHS Initial Education Course Coordinator, Brooke must be certified to provide EMT education. She states, “It’s basically like the EMS equivalent of a teaching certificate. I’m basically like our program director for EMT.” I interviewed Brooke in mid-December 2020, and the discussion lasted over 1 hour and 30 minutes.

Perception of the personal role. Brooke described her role in providing and advising on CTE programs. She said, “I’m a member of our CTE board as a community member, [and] . . . also I am the facilitator of the EMT program.” She explained her role in leading the program and making sure it adheres to the guidelines.

I make sure that we’re adhering to, the Department of State Health Services has some very specific criteria we have to follow documentation wise, skills check-off wise. I am also responsible for making sure that they have a good experience learning as well. So, I make sure that they’re educated in a way that they could explain it to someone else.

Regarding her advisory role, Brooke further explained, “As the advisory member role, we say these are things we would like to see future generations being taught like employability skills and professional behavior that they really don’t teach in school.”

Brooke noted the unique structure of her relationship with the district saying, “Most ISDs hire a paramedic who also has a teaching certification. It’s not typically partnered the way we are partnered.” She continued saying, “They have an alternative certification, or they have a teaching certificate, and so that’s how and they’re usually employees of the district.” She further explained that the local EMT is an approved vendor for the school and submits billable hours to the district for their instructors.

Perception of the advisory committee. As both an instructor and an advisory committee member, Brooke has a unique opportunity to experience the impact of CTE from multiple perspectives.

The Outreach Coordinator for the hospital and myself are the only two healthcare representatives on the CTE board. Like some of our needs for people coming into our profession straight out of high school and hers as well. We have very unique and specific needs to fill our jobs.

So, while Brooke serves as an instructor managing the district's EMT program, she also values her role as an advisory committee member. She understands firsthand how the advisory committee supports the district's CTE programs by helping them identify local community employment needs. She shared how that the EMT program evolved from an expressed need for more qualified EMTs.

Practices implemented. Being responsible for developing and implementing a CTE program that ultimately prepares students to enter the profession, you seek qualified applicants, which offers Brooke a unique opportunity to build her workforce. Brooke hosts a mandatory meeting before admittance into the program to inform students and their parents of its expectations. She explained,

I require any student that wants to join our program to have . . . a parent education night, and both the student and parents must attend. I understand that your child is still a child to you, but we are going to be putting them in situations where they're going to see very adult-like stuff.

Brooke also understands what skills are needed for students to be successful as EMTs. She noted, "If they're going to take the healthcare path after high school, they really need to be focused on these little details." Brooke ensures the curriculum offered is engaging and simulates real-world experiences.

As part of my trauma classes that I teach, we have an extrication day where we bring a car, and we get the fire department to participate. They use the tools that cut the car. We take a patient out, and we put all the pieces of trauma together.

She also offers opportunities for students to develop their leadership skills.

Every week I do the leadership development where we do something that's kind of teaching them the affective domain, but it's also teaching them something EMS-related. Moving into the spring for those leadership development days, our HR director usually does pre-graduation mock interviews with the student.

When asked what makes CTE programs challenging to implement, Brooke responded, “Covid 19 and virtual education.” Operating an EMT program requires students to practice their skills, many of which involve human interaction that would violate social distancing restrictions.

That has been so hard—the skills portion we haven’t even really tackled with the virtual students yet. So, what I’m thinking about doing is have them do the skills with a family member, and then another family member records them, and that’s how they submit it to me.

She acknowledged that operating in a Covid environment with social distancing restrictions requires them to be creative.

Impact of CTE on education outcomes and employment opportunities. When discussing the impact of CTE programs on education, Brooke argued participating in CTE programs changes lives. She said, “. . . because one thing that EMS education and the EMS field do for you is it gives you a level of confidence that you may not have had before.” Brooke shared a particular student’s story when asked similar questions about her program’s impact on participants’ lives.

I have one student in mind. It would have been the end of August when she told me that [she was] pregnant. I kind of was worried that she wasn’t going to do well, but she ended up graduating with the highest grades in our class. She was the only student in that class that we felt at the time has the sort of qualifications for an internship. She became a paramedic.

Brooke explained that her student’s unplanned pregnancy could have easily changed the trajectory of that young girl’s life. “I think there were a lot of factors there. But I think the CTE programming and how it’s offered and how we facilitate it is one of the things that helped her develop [her] way.” Brooke believes the way her program is structured enables serious participants to succeed in the program and obtain good jobs.

I think that the CTE programs specifically that we have structured allowed her that partnership. One of the things we do is we kind of mentor them. So, I partner them with someone who's been a medic for a while.

While discussing the impact of CTE on employment opportunities, Brooke explained, "Any of our high school EMT students that we feel . . . meets our employees' standards at the end of month basically the entire school years, like a working." She further explained students who receive their EMT certification could make a decent salary upon graduation from high school. She said,

If [a student] gets their EMT basic, you can come here making around \$38,000. If they pick up 1-12 hour shift of overtime every month or every pay period of 24 hours in the month, then they're making close to \$45,000 or \$46,000.

While there are many success stories, Brooke noted that becoming an EMT is not the best option for some of her students. She explained her conversation with a student who decided they no longer wanted to become an EMT.

I just don't think this is the right field for me, and I don't want to do clinical because I don't think I'll feel comfortable with the things I will see. Unfortunately, because they are in a place where it's mid-course, the student will not be allowed to transfer out. I pushed them, okay yeah, you're stuck in this class, but that doesn't mean you have to do clinical. Clinical is not part of your grade on clinical is something that you have to do to get your license. The department requires it of State Health Services. I encourage them to at least learn what they can to provide adequate first aid for their family in the future. I explain to them like I just need you to put forth enough effort to pass this grade or pass this class with a good grade. So, it doesn't negatively affect your GPA.

So, even though the EMT career path may not be for every student that enrolls in the program, Brooke explained that the experience participating in the program enables students to learn life-saving skills.

Understanding of Perkins legislation. When asked about her knowledge of Perkins V legislative requirements, Brooke admitted she does not have a great deal of experience with the legislation. She said, "I know there's Perkins money. I have to

submit a budget, but I know nothing about Perkins V.” She recalled discussions while attending a meeting saying, “I know in our CTE advisory board meetings, we’ve discussed different avenues to explore how to use the Perkins grant money.”

Bethany—CTE Instructor

Bethany is the lead instructor for Project Lead the Way offered at the middle school of a 5A district. She has been instrumental in the launch and success of the STEAM Academy started more than 2 years ago. She teaches sixth-grade Design and Modeling and seventh grade Automation and Robotics. Bethany started her third year in this position; however, she has been with the district for 14 years. Bethany’s interview was conducted in early January 2021, and the discussion lasted approximately 50 minutes.

Perception of the personal role. Bethany’s school district offers CTE programs at both the high school and middle school. She explained her role as a CTE instructor for middle school students.

I kind of perceive my role as giving them all the introduction and basics into what CTE is, what the design processes and basically any, like, so whatever CTE program they choose to do with the high school level, the foundation will basically [starts with] me.

She views her role as the initial introduction to CTE and preparation for their high school years.

Perception of the advisory committee. Bethany described her perception of the advisory committee and its impact on the STEAM Academy.

I love it. I mean, getting the community’s input is great. Since they’re the ones that are going to be hiring, you know, little angels, I definitely like to hear kind of

what they have to say and what we have to work on. We definitely take what they have to say to heart and into consideration; as you know, we kind of plan a lot of our stuff around [their feedback].

When asked what ways the advisory committee supports the program's priorities, goals, and practices, Bethany explained their support is invaluable. While she values the advisory committee's involvement, she felt much of their impact stems primarily from the feedback.

Like we get teachers, we bring in some of the students we tell the community members kind of what we're working on. Then we get feedback from them, we implement it, then we come back the next time, and we kind of say this is what we're doing now; last year, my TSA group they were going to a competition. So, we were able to bring them in and present their project to the entire advisory committee. So, for me, it looks like it's mostly feedback.

Bethany elaborated by providing an example when the advisory committee's input helped improve their program.

Last year, the advisory committee said there were issues like these kids being hired, but you need to baby them. They said the students lacked in employability skills. So, we came up with a whole system within our curriculum that we have already incorporated to improve employability skills.

Despite serving primarily in an advisory capacity, Bethany believed that the advisory committee is instrumental to CTE programs' success.

Practices implemented. Still, in the infancy stage, Bethany discussed the rollout of the district's STEAM Academy.

Our superintendent's vision was to have some sort of a STEAM Academy that really focused on project-based learning. Three years ago was the first year, and we rolled it out with only sixth grade. Then last year, we added seventh grade, and this year we added eighth grade.

When asked about how she supports CTE programming delivery, Bethany explained how she incorporated field trips into the program. She commented, "Two years ago, we went

on a lot of field trips. [In 2020] we did not go on any field trips, and then, of course, Covid hit. Of course, this year, we're not going on a field trip." When I asked Bethany whether or not she coordinates activities with other instructors teaching core classes, she explained they have begun having conversations on ways she could support them. She said, "I know we've been having those conversations, and then beginning of this year, I did sit down with our algebra teacher and kind of hammer out the TEKS."

Impact of CTE on education outcomes and employment opportunities. When asked to evaluate the STEAM Academy's impact on education outcomes and employment opportunities, Bethany acknowledged that it would be difficult to assess its impact on employment. She noted the STEAM Academy would have its first class of eighth-graders this year. So, Bethany does not have any data on how the program influences high school CTE participation. However, she did feel the academy improves student engagement. She stated, "My kids' engagement in my class is a lot better than some other classes."

Understanding of Perkins legislation. When asked about her knowledge of the Perkins V legislation, Bethany said, "The CTE Director has mentioned it several times about how she needs to tweak this and do this or we can't do this because of Perkins, so I know we're aligning with it. I just have never actually looked at it." In the next section, the themes shared among CTE Program B's three participants are presented.

Case 2—Analysis of Common Themes

The review and analysis of participants interviewed from CTE Program B revealed three common themes: advisory committee feedback improves programs, CTE

builds relevant skills, and CTE increases engagement and improves educational outcomes. Participants identified other factors critical to their district's CTE programs success; however, three themes emerged among at least two participants.

Advisory committee feedback improves programs. While CTE Program B offers programs at both middle school and high school, they have just one advisory committee for the district. All participants identified advisory committee feedback as being critical to the ongoing improvement of their programs. Brett used, for example, the time when advisory committee members shared their experience with hiring students from different CTE programs noting that students lacked employability skills. He explained how that feedback encouraged him to make changes to their CTE programs to include training to build employability skills. Bethany shared how she values the advisory committee's involvement and felt much of their impact stemmed primarily from their feedback.

CTE builds relevant skills. All three participants expressed the importance of ensuring CTE students learn relevant skills needed to succeed in high school, their future careers, and life. Brett noted he works diligently to ensure their programs and practices correlate with the community's needs. As such, he stressed the changes implemented to incorporate building opportunities for students to improve their employability skills. Bethany confirmed the changes made to her STEAM program to focus on building employability skills following advisory committee feedback. Brooke also noted the importance of teaching the necessary skills for her students. As both an instructor and advisory committee member, Brooke also understands what skills are needed to be a successful EMT. In addition to employability skills, Brooke offers students opportunities

to learn technical abilities and develop their professional and leadership skills. While the skills needed may vary depending on students' age and program enrolled, all participants, in this case, agree that skill-building is essential to students' success.

CTE increases engagement and improves educational outcomes. In each case, participation in CTE improved student-related outcomes. Bethany noted the newly implemented STEAM academy, in existence for its third year, has just incorporated eighth-graders and does not have sufficient data to evaluate its impact on education outcomes such as standardized test scores. However, she explained that student engagement is higher in her STEAM courses compared to other non-STEAM classes. Data does reveal improved educational outcomes among high school CTE participants. Brett noted CTE students perform better in the classroom and on standardized testing. Despite the varied outcomes, all participants agreed CTE positively impacts its students' lives.

For the third case in this study, a CTE program is presented where the district offers all its CTE-related activities at a single high school. According to this district's CTE coordinator, there are few programs in the state of Texas with a separate CTE building. This district has most of its CTE programs located in the school's newly constructed CTE building.

Case 3–CTE Program C

The Texas Academic Performance Report for the 2019–20 school year stated the district's enrolled population equaled nearly 11,000 total students (including grades from early childhood education to Grade 12), with 48.4% identified as female and 51.6% male

(TEA, 2020a). In this 6A school district, 87.9% of the total enrolled student population is deemed economically disadvantaged with an ethnic distribution that included 85.2% Hispanic, 8.1% African American, 4.3% White, and 2.4% representing other races. The data also revealed more than 1,400 high school students enrolled in a CTE program representing 43.7% of the district's student population.

According to TEA's 2019–20 budgeted financial data, the school district's budget totaled nearly \$135 million. Career and technical programs' total expenditures approximated \$2.4 million, representing 2.02% of all general fund expenses for the district, totaling nearly \$119 million. While the percentage budgeted for career and technical programs decreased from 2.34% of general fund expenses in the prior year to 2.02%, the total dollar amount invested in CTE programs increased by more than \$375,000 and from \$186 per student to \$219 per student for the current reporting period.

As shown in Figure 13, CTE Program C includes CTE courses offered at one area 6A high school. The program has one CTE advisory committee for the entire district with 25 to 30 members. According to the district's 2020–21 CLNA, CTE Program C consists of 11 state-approved career clusters. In the next section, CTE Program C's performance indicators compared to state measures are presented and discussed.

Case 3—CLNA Document Review

According to the 2020–21 CLNA, CTE Program C reported 11 career clusters with 665 CTE learners, which accounts for CTE Concentrators and CTE Completers. The district reported business, marketing, and finance as its number one career cluster with 26% of its enrolled CTE learners based on labor market alignment data. Health science was rated second with 23.8% of its CTE learners.

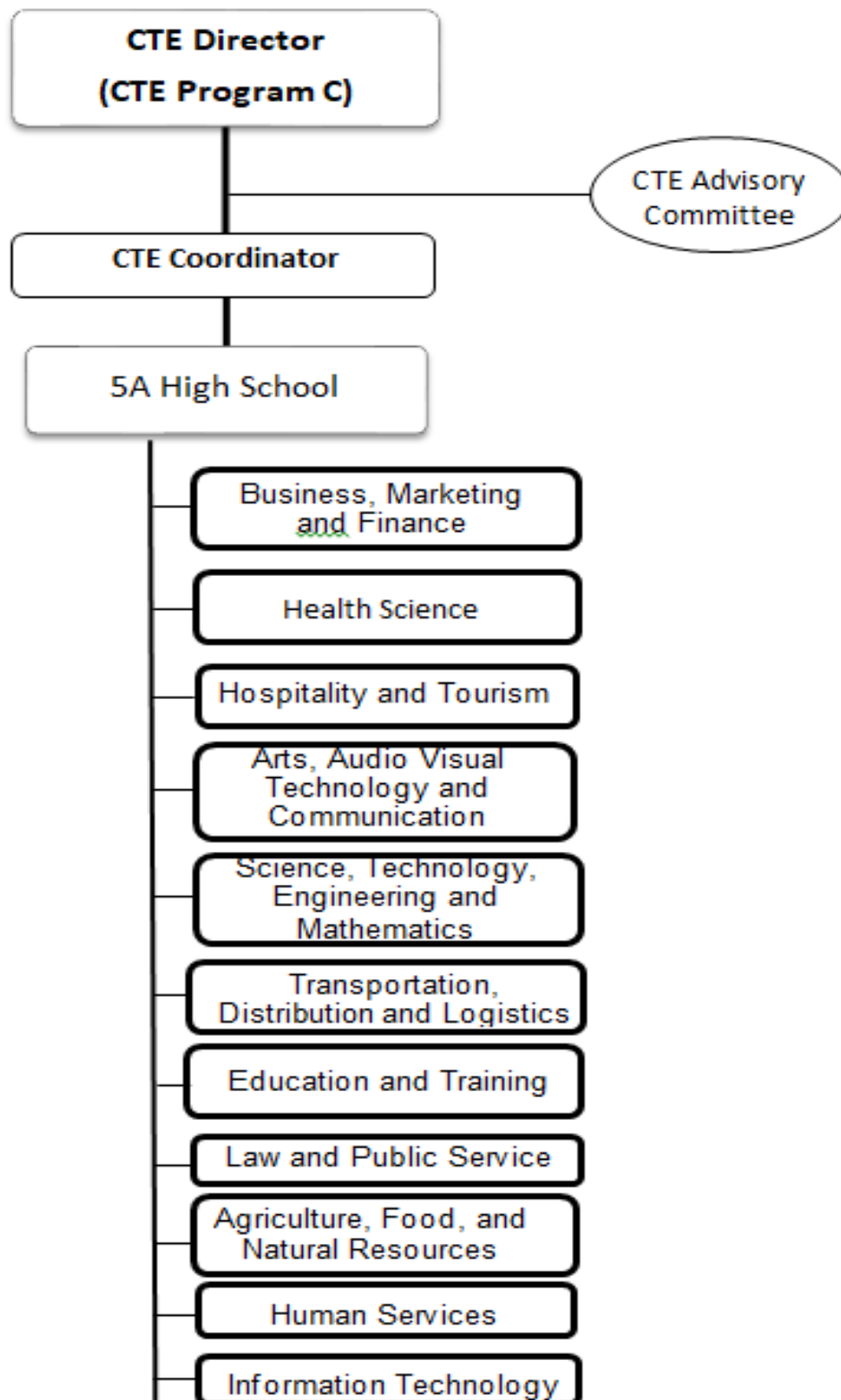


Figure 13. District 3–CTE Program C design structure.

Hospitality and tourism ranked third with 14.6% of enrolled CTE learners. Based on the number of CTE learners enrolled, information technology, human services, and agriculture, food and natural resources ranked lowest in those career clusters with 0.6%, 0.8%, and 1.2%, respectively.

Based on data reported in Table 6, the district met or exceeded accountability indicator targets for CTE learners in three areas: 4-year graduation rate noting 98% for the district compared with 97% for CTE learners statewide, non-traditional program-concentration with 58% for the district compared with 50% for CTE learners statewide, and Program Quality–Attained Recognized at 9% for the district compared with 8% statewide.

Table 6
Perkins V Performance Indicators–CTE Program C

Indicator	Name	CTE Learners	
		Statewide %	District %
1S1	4-Year Graduation Rate	97	98
2S1	Academic Proficiency in Reading/Language Arts	58	44
2S2	Academic Proficiency in Mathematics	47	45
2S3	Academic Proficiency in Science	60	59
3S1	Post-Program Placement	71	69
4S1	Non-Traditional Program- Concentration	50	58
5S1	Program Quality – Attained Recognized	8	9
5S4	Program Quality – CTE Completer	32	30

Note. Reproduced and used with permission from School District 3.

CTE Program C reported figures that were within 2% of the accountability indicator targets for its CTE learners in four areas: academic proficiency in mathematics reporting 45% for the district compared with 47% for CTE learners statewide, academic proficiency in science with 59% for the district compared with 60% statewide, post-program placement with 69% for the district compared with 71% statewide, and program quality–CTE completer with 30% for the district compared with 32% statewide.

Despite reporting lower than statewide on 2S1, 2S2, 2S3, 3S1, and 5S4 performance indicators, the report showed CTE learners' performance was greater than non-CTE learners in all categories, including 1S1, 2S1, 2S2, 2S3, 3S1, and 5S1 indicators. The district also reported higher representation for CTE learners in the following student groups: Female, Black or African American, Hispanic or Latino, Two or More Races when compared to the district's overall student population. The interview analysis of CTE Program C's participants is presented in the next section.

Case 3–Interview Analysis

Three participants were interviewed for Case 3. The participants included the district's CTE Coordinator, an advisory committee representing a trade school, and an automotive technology teacher. Participants were assigned a pseudonym. The pseudonyms selected for all participants of CTE Program C started with the letter C. District C's 30 member advisory committee oversees activities for the high school's CTE programs.

Candice–CTE Administrator

Candice serves as the Career and Technical Education Coordinator for District 3. This year marks her third year in this role after serving in a similar position for another ISD for 1 year. Before becoming the district’s CTE coordinator, Candice served as an instructor. I conducted Candice’s interview in late January 2021, and the discussion lasted nearly 45 minutes.

Perception of the personal role. When asked how Candice perceived her role in the district’s CTE programs, she began stating, “I have a big piece of compliance so complying with state and federal grant [requirements].” She also explained, “My role as coordinator involves working with our CTE Director, dealing with the school board, and I work a great deal with the teachers.” She further explained, “I help with teacher curriculum needs, with teacher education, and professional development.” She continued by saying she was responsible for “building programs, ensuring teacher needs are met, and ensuring students have access to relevant equipment, relevant curriculum, and just creating opportunities for both teacher and student growth.” Candice provides support to 51 CTE instructors and oversees 25 programs.

Candice also shared how she builds relationships with the local community college. She noted, “We work with the local community college, creating those dual credit opportunities for students.” She also said, “I help develop partnerships with community businesses. We work to get students internships, and we work with businesses also to find out what relevant experience the businesses need.”

Perception of the advisory committee. Candice shared her perception of the district's advisory committee and its effectiveness in developing and implementing CTE programs. Candice explained, "I've only been a part of, I guess the advisory committee 2 years, but in the meetings that we've had our advisory committee basically, they provide information." She provided context by explaining the type of information committee members offered.

They help us identify industry needs related to equipment and the curriculum for what the students need to know before entering the industry. They help us determine what we should be teaching. They help teachers align their curriculum and class to what the needs of the industry are.

In addition to providing information on what students need to know, Candice explained advisory committee members also serve as consultants. She shared an example of how a committee member's input helped them improve a CTE program.

Another big area is equipment needs. They're able to come in and say this is what we're using. For example, in our animation program, we had a software company reach out to us and say this is the software we're using. This is what most people in animation are using. This particular software was one that we had not been using. We were able to go ahead and purchase that software for our animation teachers, so moving forward, our kids have access to that software, which is actually used by the industry.

Candice noted that while the advisory committee is instrumental in their CTE programs' success, they generally provide advice identifying what students need to know or need to be able to do.

Practices implemented. Responding to questions about the practices her district implemented to develop or improve their CTE programs, Candice started by explaining being involved in the community is essential and the role such involvement played in developing successful CTE programs.

So, one of the big ones is our alignment to regional employment needs. We are all on several committees in the community, like the Texas Central Texas Workforce Commission, which helps us determine what the needs are in the community. Then we've tried to align our programs as closely as we can to those needs. For example, the health science industry is huge in this area. There is a constant need for nurses, techs, and CNAs. Our health science program is our biggest program. We currently have 800 students that are in the health science program of study. So, as closely as we can, we try to align our programs with what the regional industry needs are.

She continued describing the practices implemented by discussing the significance of encouraging CTE participants to remain in the programs to earn the concentrator designation.

Another area I feel is pretty big is our concentrator status. So, increasing the number of CTE concentrators or completers is big because we were a little low on completers.

As far as concentrator status, we have 25 programs. Whatever a student is interested in, and there's a program for that. So, what that does [is] encourage students to stay in the programs for more than one course. Not only that, but we have a brand new CTE facility which also increases interest in our CTE programs.

Furthermore, CTE participants can gain real-world experience through practicums offered.

Right now, almost every program that we have offers a practicum at the end of it, and in those practicums, not all of them have outside internships, but that's one of the areas that we're working on. Our auto tech, culinary, hospitality, and health science all have external partnerships for the practicums. I say we probably have those in maybe 30% of our programs. It's one of the areas that we're trying to build.

While Candice acknowledged there are still areas they are working to improve, she feels her district's programs positively impact the lives of the students who participate.

Impact of CTE on education outcomes and employment opportunities. When describing the effect of their CTE programs on participant education outcomes, Candice noted, "Our data shows CTE learners outperform non-CTE learners and all accountability

indicators by between 20 and 25%.” She believes the reason for this success is, in part, the alignment of CTE curriculums to core courses.

Our CTE students pretty much outperform regular non-CTE students in every area related to testing scores in English language arts and math. It has to do with the technical language they need to know to participate in labs, internships, practicums, and CTE.

In addition to better test scores, Candice believes CTE also improves attendance rates.

She said, “I think this is for every CTE program around; students who are in CTE tend to have better attendance in school because they’re coming to school for those programs.”

Candice reasoned that CTE allows students to make meaningful connections between their education and their future.

They feel like they’re actually doing something that’s relevant and meaningful, and not just, you know, they’re helping this company, but also for them and their future. So, they’re gaining experience so that there’s definitely that change, a certain level of confidence. There’s a boost in confidence, and finding relevance and meaning to what they’re doing, it’s cool.

Candice explained another factor impacting the success of their CTE programs on education outcomes is the certifications they offer.

The other thing is the certifications that we offer. We offer certifications in just almost every program that we have. We have tried to align certification with every program of study so the kids get one foot up when they’re seeking employment.

She believes certifications help prepare students for employment upon graduation from high school.

When asked about her perception of CTE programs on employment opportunities, Candice further explained that building community partnerships are vital for their programs’ success. She said, “We do all these things with building partners, and then, in the end, we really want an internship opportunity for our kids.” In explaining the value of

community partnerships, Candice provided an example of how effective partnerships lead to improved employment opportunities for their students.

In one of our community partnerships, they recruited our graduating seniors to go into that program. It's a 1-year program where they get paid as a tech, in the very next year, they are able to get hired on full-time with benefits and everything.

Candice has seen the impact that CTE has on both educational outcomes and employment opportunities. She firmly believes CTE changes lives for its participants. She noted, "I feel like it's one of the areas in education where you really have an impact on the outcome of a child's life."

CTE programs can be expensive to implement, and for some school districts, funding can be a challenge. Candice feels their district's CTE programs are well funded.

CTE is pretty well funded here, and it's very important to our Superintendent and important to the community. I mean, they built our new CTE building using bond funds, so the community said we want this. So, we have a lot of support from them.

While she recognizes the increased program enrollment rates and improved education outcomes, such as higher standardized test scores, Candice acknowledged there are areas that they are working to improve their CTE programs.

So, one of the big things that we've had in building internships is distance. Getting students to where they need to go in a reasonable amount of time for these internships it's really hard. That's definitely a big barrier, something that we've been working on is that, we provide a lot of transportation for students with internships, but even that we have to share the buses with elementary schools, with the middle schools.

Candice commented that her district continues to "revamp" to ensure their programs do more than meet standards but instead represent CTE program best practices.

Understanding of Perkins legislation. When asked about her knowledge of the Perkins V legislation, Candice explained the changes required by the new legislation.

There's an increase in funding, but really that doesn't affect us unless the state decides to give the district funding. There's the local needs assessment requirement. Then there's more of a focus on special populations. We were already focusing on that because that's where we are scoring lowest on our STAAR testing.

She further explained the impact of the legislation on special populations.

Perkins V increased focus on special populations, which is already huge with my district; we're 90% economically disadvantaged with a high percentage of African American and Hispanic students, so we already focus on those populations.

Candice noted that the changes did not necessarily impact how their program operated.

When asked the question of how well she perceived her district's CTE programs aligned with the Perkins V legislative requirements, she responded, "I would say we're probably close to seven or eight. I feel like a lot of the stuff we were already revamping to make it best practices." She further explained, "Perkins V, the requirements are things that we are already doing. It's like best practices for CTE, and if your district is, you know, was trying to operate under best practices, and not just like the minimum state requirements." Adopting a best practices approach contributed to their program's success.

Charlie—CTE Advisory Committee Member

Charlie serves on the District 3 CTE advisory committee. In his professional role, he is a Field Admissions Representative for a trade school whose primary focus is on STEM-related career pathways. Charlie's association with the district started 19 years ago, and he joined the advisory committee nearly 16 years ago. I interviewed Charlie in early March 2021, and the discussion lasted for 30 minutes.

Perception of the personal role. Charlie shared his perception of his role, explaining their programs provide STEM career pathways for students to pursue following high school graduation.

I help young people. In some cases, you know they have no idea what to look forward to after high school, and I give them ideas and give them hope, and they never even thought of some of the career pathways that we offer.

Charlie summed up his role on the advisory committee, saying, “It is to help them with recommendations that best serve the school district and their students.” He further explained, “We basically participate in the school heavily involved in CTE programs and make suggestions and offer help in providing the CTE programs.” As the Field Admissions Representative for a trade school, Charlie focuses on informing CTE students and the greater community on potential career pathways available to high school graduates.

Perception of the advisory committee. Charlie explained, “I think it’s my role basically to understand the ideas and bring a different approach to the CTE programs, make sure they know how to share that with their students, and more importantly, make sure parents can be involved.” Charlie believed the primary role of committee members is to advise and make recommendations. He said, “We support the program by helping them promote both internally and externally and then basically help them obtain goals. What we do is make sure we follow through to make them a reality.” Charlie noted he makes sure educators know what programs the trade school offers and what industry requires of students pursuing those fields.

Practices implemented. Charlie argues one critical component in CTE is educating students and parents on potential career pathways.

Honestly, the community and the parents have to be educated because the “college for all” mentality has been the downfall of CTE. Showing them that the CTE programs are strong career pathways and make sure they understand that higher-level incomes can be obtained in CTE.

He explains, “If the parents aren’t involved, it’s kind of hard to continue engaging with the students.” Charlie argues the need for ensuring the public is informed about CTE and how these programs lead to promising future possibilities.

We do career workshops in classrooms and active live classrooms. We do PowerPoint presentations and workshops to identify who we are, what we do and what the industry is doing, and why it’s important to follow these rules to get them to their goal. So there is no surprise when they come to us, and we deliver them to the employers.

In addition to informing parents and students about CTE, equally important is ensuring CTE instructors are well informed about their future employees’ employer expectations.

As an added resource, Charlie offers training for CTE teachers.

We have workshops for the teachers, which is great because they get their education hours required per year. So, we invite them to our schools to tour our facilities. In prior years, we would take them to industries and tour dealerships. This is now being done virtually. But we can show them this is what these new dealerships look like, and this is the technology and equipment that a student would be working on.

Thus, information sharing is critical to the success of all CTE programs.

Impact of CTE on education outcomes and employment opportunities. Charlie believes the CTE programs the district offers “give [students] the confidence to look into careers that they never thought about.” He further explains that CTE enables students to learn, experience, and prepare for their potential careers.

To have the students be able to have that equipment to understand the technologies that are available and how to use them when they get into the workforce is important. Without having that at the high school level, they’re going to be lost when they try to look for these types of jobs because they’ve never been exposed.

For students participating in CTE programs, Charlie observes firsthand the impact those programs have on employment outcomes. He said, “I think that the CTE program has proven effective in that we are seeing students placed in job markets.” He confirmed his

observations by the feedback he receives from students. He shared his students' sentiments saying, "We feel that we're preparing them for the next steps of their lives whatever part that might be."

Understanding of Perkins legislation. When asked to share his knowledge of the Perkins V legislation, Charlie said, "I'm not real familiar with it." Despite knowing specific requirements, he did say, "We believe that the legislation is very important, and basically helps narrow the skills gap in the United States and then helps in the funding for education."

Chris—CTE Instructor

Chris's official title is Automotive Technology instructor, and it is his fourth year serving in this position. He previously served as a teaching assistant for 10 years. Chris's interview was conducted in early February 2021 and lasted 30 minutes.

Perception of the personal role. When asked how Chris perceived his role related to the CTE programs the district offers, he said, "So, I kind of teach them what we need to teach them and what I would call tricks of the trade, which is what you're going to find out in real life." He elaborated, explaining the various ways he supports the delivery of CTE programs.

I think my role is more than one thing. I'm not just a teacher for the students. I'm also an advocate for them out in the community. I'm the link between the professionals and the students. A lot of my students don't know what to do after high school or during high school, so I help them find their way. I know who to put them in contact with based on what they're looking for. I'm also their voice. So, if we are running into issues in the classroom and there's something that we don't have that would make things a lot easier, I can voice that to our higher-ups. The way I deliver it's more than one way; it could be based on my personal experience. I'm giving the kids real-world experience.

Perception of the advisory committee. Chris shared his perception of the advisory committee and its effectiveness in developing and implementing CTE programs. He explained, “I think they’re more just advising on what they would like our students to have. They’re not very highly involved in any kind of curriculum development.” However, he continued saying, “They’re still a strong part in guiding our students.” He further explained, “Texas tells me I got to teach the minimum and advisory committees kind of gear me towards what else I need to do, or what I need to concentrate on more.” Chris also described his perception of their role and how the committee contributes to his district’s CTE programs’ success.

Our advisory committee consists of industry partners, which includes potential places of employment for our kids and post-secondary partners. If my student wants to go to work right out of high school, I have that connection, and I know what those partners are looking for or if my student wants to go to college or go to a trade school, I know that I can concentrate more on preparing them for college. I can gear their senior year education based on what I know they want to do, and that all comes from input from our partners on what they want the kids to know.

While he noted the advisory committee did not assist in developing the curriculum, Chris acknowledged the value of their feedback.

Practices implemented. Chris described ways he supports CTE programming delivery in his district. He explained how he invites industry partners to speak with his students. He said, “So, industry partners come in and talk to our kids and say, hey, if you want to come to us, here’s what you can expect, here’s what we want you to know.” He further explained,

Our partners come in two to three times a year, and they talk to all of our classes. They come in, and they talk to everybody, so even my freshman gets to see them when they get up to their junior level.

Chris also discussed how different practices impacted the success of the CTE programs he teaches. He said, “It helps that they get the personal relationship with the partner, whether it be the post-secondary or the career partner, and they’re working together as early as their sophomore or junior year.” Chris argued building these relationships is important because the industry partners provide students with vital information about the industry and their employment expectations.

They start potentially working with them planning resumes and interview questions [their] junior and senior year so that they’re not new faces to them. They have a good relationship by their junior year, know who they’re talking to, and know who they could potentially work for.

Chris explained another essential role he plays in supporting the delivery of CTE programs includes educating parents. He said, “I’ve had kids come to me saying my parents don’t want me to be in this class.” When advocating for his students and CTE, Chris uses real-world data and examples to illustrate his point.

We do the research, and you’ve got a kid graduating class of 100 people with their master’s degree fighting for five to six jobs every graduating class. So, you have a hundred people looking for five or six jobs. Basically, you have 95 people with the \$80,000 debt-making [minimum wage].

Chris further expanded his example by presenting a certified master technician’s earning potential, a position that his certified students could be eligible for upon graduating from high school.

I tell my parents, you put your kid in my class for 4 years; they have the potential to earn a good salary. An ASE certified master technician in the field with 5 years of experience is making well over 80 to \$100,000 a year, and that’s not an exaggeration. Those are actual numbers coming from the industry. It’s been researched that we cannot fill those jobs quickly enough. Every year we were looking for over 120,000 new technicians per year.

Once he explains the industry demand and illustrating what his students could earn, Chris says he concludes his example by asking those parents, “So, do you want to be in debt \$80,000 for the next 20 years?”

Despite advancements and improvements in their district’s CTE programs, Chris still believes there is a stigma regarding CTE. He argues there is a misconception among parents, students, and some educators that college is necessary for students to access high-demand, high-wage employment opportunities. He noted, “A 4-year college is not for everybody, but when I was in high school, many people believed and still believe if you don’t go to college, then you’re not worth anything.” Chris said he works hard to educate people and correct this common misconception.

Impact of CTE on education outcomes and employment opportunities. As an auto tech instructor, Chris admitted he did not know how his courses impacted education outcomes in the core classes. However, he noted, “I am pushing them for you know for the critical thinking and then their reading skills.” He also said, “I have a few of my kids to always come to me and say, this is the reason I come to school.” Knowing that his students enjoy participating in his program, Chris sometimes uses this knowledge to encourage them to do well in their other classes. He noted,

If I see a kid is doing really well in my class but failing everything else, I’m going to pull them aside and let them know I’m not going to let them go to my shop if you can’t pass English, math, and science.

When asked about his perception of CTE programs’ impact on his students’ employment opportunities, Chris explained how the automotive technology program evolved.

Before I came in, there were no certifications being done whatsoever. Students in auto tech would work on cars, they got a grade, and they left. These students

would graduate high school and not do anything. Now, there are certifications for my senior-level students. When they leave, they could have 13 certifications with me, all industry-recognized certifications, if they pass every certification test that not all students do. They have the opportunity to [graduate high school] with 13 certifications.

Chris firmly believes certifications improve his students' employment opportunities and gives them a chance to get a good job when they graduate high school.

I have [business partners] coming knocking on my door asking who do you have for me? They ask can we get some of your kids to work for us. They say we need some of your kids, and we heard that they have these certifications, can we hire them?

Incorporating certifications into the automotive technology program improved the program's quality and increased CTE participants' employment opportunities.

Understanding of Perkins legislation. When asked about his knowledge of the Perkins V legislation, Chris acknowledged that he was not well-versed in the Perkins legislation.

I know that every October or November, our director notifies me of our Perkins funding . . . for large equipment purchases and asks for my wish list. I know it's a grant that helps CTE programs with purchases that our normal budget could not cover.

Though specific requirements are unknown, Chris understands the importance of the legislation on funding much-needed equipment for his CTE programs. The common themes that emerged during CTE Program C's data analysis are presented in the following section.

Case 3—Analysis of Common Themes

Analysis of the interviews conducted from CTE Program C participants revealed three common themes: advisory committee advice is instrumental in identifying

community needs, building community partnerships are key, and certifications improve employment opportunities. Participants noted other factors they identified as essential in the success of their school's CTE programs; however, the three themes discussed below emerged among two or more of the participants.

Advisory committee guidance instrumental in identifying community needs. All participants explained the significance of advisory committee guidance on improving the quality of the programs offered and curriculums taught. Committee members represent a diverse group of professionals from multiple industries with varied levels of knowledge and experience. The collective group's extensive knowledge of the local community is instrumental in assisting educators in developing CTE programs. All participants noted the advisory committee is vital in identifying what students need to know or what skills students should possess to meet local community needs.

Building community partnerships is key. Each participant identified specific ways in which building community partnerships improved programs and increased students' opportunities. Candice explained how she builds relationships with local community colleges to create dual credit opportunities for students. Charlie expressed the importance of informing the community about CTE and ensuring parents are involved in the process. Chris noted how he invites industry partners to speak to students about what they can expect and what employers expect from them. All three participants discussed the critical need for building relationships to offer internships for CTE students. Although each participant identified various reasons for developing community partnerships, they believed the relationships improved the district's programs' quality.

Certifications improve employment opportunities. All participants addressed the importance of certifications to successful CTE programs. Candice noted the district offers certification for almost every program. Chris explained how business partners “come knocking” on his door trying to recruit his certified students. All three participants expressed their belief that certifications improved the programs’ quality and improved students’ employment opportunities. In the fourth case in the study, a single advisory committee in a district with multiple high schools offering CTE programs at each campus is presented.

Case 4–CTE Program D

Based on the Texas Academic Performance Report for the 2019–20 school year, CTE Program D, directed by a 6A school district, enrolls nearly 21,000 students (including grades from early childhood education to Grade 12). Of the enrolled student population, 48.8% identified as female and 51.2% as male. Of the total enrolled student population, 49% were deemed economically disadvantaged with an ethnic distribution that included 64.3% Hispanic, 28.8% White, 3.0% African American, and 4% representing other races. The report also revealed approximately 2,500 high school students enrolled in a CTE program representing 41.7% of the district’s high school (Grades 9–12) student population.

For the 2019–20 academic year, the school district’s budget totaled nearly \$230 million. Career and technical programs’ total expenditures estimated at approximately \$6.3 million, representing 3.36% of all general fund expenses for the district, totaling nearly \$187 million. While the percentage budgeted for career and technical programs decreased from 3.62% of general fund expenses in the prior year to 3.36% reported for

the 2019–20 period, the total dollar amount invested in CTE programs increased by \$1.6 million from \$4.6 million for the 2018-19 budget period to \$6.3 million for the current reporting period.

CTE Program D, as shown in Figure 14, includes CTE courses offered at two 6A and one 5A high school. The program has one CTE advisory committee for the entire district with 62 members. According to the district’s 2020–21 CLNA, the CTE program consists of 13 state-approved career clusters offered at each of the three high schools except an additional course in aerospace offered exclusively at one high school and barbering offered at another. There are 71 CTE instructors among the three high schools. A licensed instructor employed by the schools teaches most of the district’s CTE programs except their fire academy. In the following section, CTE Program D’s performance indicators are presented.

Case 4–CLNA Document Review

The CLNA report for CTE Program D revealed 13 career clusters with 925 CTE learners enrolled. The total CTE learners reported included students designated as either CTE concentrators or CTE completers. Part 3 on labor market alignment revealed science, technology, engineering and mathematics, health science, and law and public service ranked among the top three career clusters with 20.9%, 14.8%, and 13.1%, respectively. Among the lowest-ranked career clusters were information technology reported the fewest number of CTE learners with 0.8%. Career clusters, transportation, distribution and logistics, and hospitality and tourism, each reported 1.7% of the enrolled CTE learners.

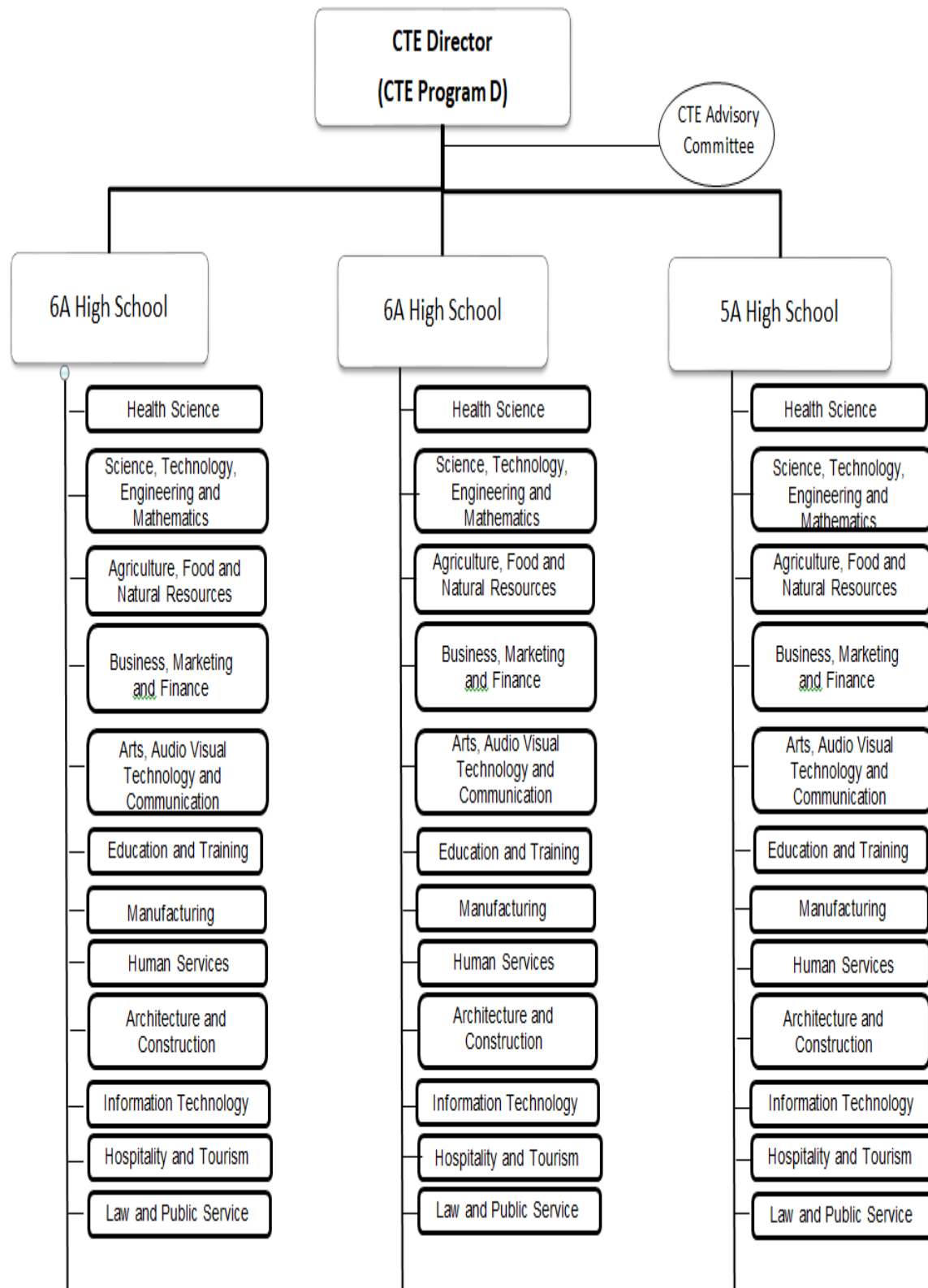


Figure 14. District 4–CTE Program D design structure.

Data comparing the district's Perkins V performance indicators to statewide figures showed the district met or exceeded accountability indicator targets for CTE learners in three areas (see Table 7). The three performance indicators included 4-year graduate rate reporting 97% for the district equaled 97% for CTE learners statewide, academic proficiency in reading/language art with 61% for the district compared with 58% statewide, and post-program placement reported 74% for the district compared with 71% for CTE learners statewide.

Table 7

Perkins V Performance Indicators—CTE Program D

Indicator	Name	CTE Learners	
		Statewide %	District %
1S1	4-Year Graduation Rate	97	97
2S1	Academic Proficiency in Reading/ Language Arts	58	61
2S2	Academic Proficiency in Mathematics	47	45
2S3	Academic Proficiency in Science	60	58
3S1	Post-Program Placement	71	74
4S1	Non-Traditional Program—Concentration	50	40
5S1	Program Quality—Attained Recognized	8	7
5S4	Program Quality—CTE Completer	32	25

Note. Reproduced and used with permission from School District 4.

According to Table 7, CTE Program D reported figures within 2% of the accountability indicator targets for the district's CTE learners in three areas: Academic

Proficiency in Mathematics reporting 45% for the district compared with 47% statewide, academic proficiency in science with 58% for the district compared with 60%, and program quality–attained recognized reporting 45% for the district compared with 47% for CTE learners across Texas. Despite reporting lower than statewide on 2S2, 2S3, 4S1, 5S1, and 5S4 performance indicators, data revealed CTE learners outperformed non-CTE learners in all reported performance indicators. The district also noted higher representation for female, Asian, and Hispanic or Latino CTE learners than figures for all CTE learner student populations in Texas. The interview analysis for participants representing CTE Program D is discussed in the following section.

Case 4–Interview Analysis

Case 4 involved three participants. The participants included the district’s CTE Director, an advisory committee member who also manages the school’s fire academy, and an Ag instructor. Participants were assigned a pseudonym. The pseudonyms selected for all participants of CTE Program D started with the letter D. District D’s 62-member advisory committee oversees activities for all three high school’s CTE programs.

Danielle–CTE Administrator

Danielle serves as the Career and Technical Director for District 4. While she served in the career and technical education field for 29 years, she served as Director for this district for 8 years. Danielle manages the entire district’s career and technical programs, including two 6A and one 5A high school. I conducted Danielle’s interview in late January 2021, which lasted 1 hour.

Perception of the personal role. When asked how Danielle perceived her role related to the CTE programs her school district offers, she explained that she oversees all aspects of her district's CTE programs.

I kind of have to know a little bit about a whole lot of things, and you know, my teachers are the specialist. I don't know that much about law enforcement, welding, or culinary arts, but I have to know a little bit about each of those areas. I always see it as my job to advocate for every one of my clusters. It is my job to take care of all 100 teachers. It's my job to connect them with our community. I am always, you know, working with the community leaders and the business leaders to try to put everyone together to see how we [are] getting our kids ready for our local workforce.

She further explained how involved she is in the community to stay well-informed of what is going on in the business community. "I also go to the economic development board meeting. They talk about what businesses are coming to town. Who's moving here? We can then plan ahead too far as we need to do to get our kids ready." Danielle noted advocating for CTE in the community is vital because it identifies local needs and builds community support for their programs.

Perception of the advisory committee. When asked to describe her perception of her district's advisory committee's effectiveness in developing and implementing CTE programs, Danielle responded that her committee members are instrumental in ensuring their programs address the community's workforce needs. Danielle noted she always asks her committee members, "What did they need out of their workforce?" She further explained that she regularly meets with the committee, frequently discusses the programs offered and provides opportunities to identify other programs for consideration.

So, the number one example that always comes to my mind is when we meet, I go over the list with them. I tell them these are the certifications we're currently offering; now out of that, where are we missing the boat? What do you need that we're not doing?

Danielle reflected on a meeting a few years ago where the fire chief said, “I need firemen!” She then responded, “Let’s start a firefighter academy. So, that was an October meeting, and we started a firefighter academy in August of the following year.” She noted, “In May 2020, we had our second set of cadets [to] graduate. When they graduated, they earned both firefighter and EMT [certifications].”

Practices implemented. When asked to reflect on the district’s practices to support CTE programs’ delivery, Danielle first discussed the significance of support from the district’s school board, administration, and the community.

What happens in CTE and [this] ISD does not happen without the support of my school board, my superintendent, everyone below him, and the support of my community. Since I got here in 2013, we’ve had two bonds that included CTE. With the first bond, we put in biomedical and built a welding and construction shop. In 2017, we had a bond that built us a brand new building for auto tech and med tech. We gutted a building that became a CTE building, and we added broadcasting, vet tech, and culinary.

Danielle further explained that in addition to funding the acquisition of new or renovated CTE buildings, community bonds allow for the expansion of new CTE programs.

We’ve been able to start so many new programs. We started cosmetology and added auto tech, culinary, and barbering. We try to add programs that have a need.

When they built the high school 15 years ago, [there was this perception that] every kid was going to college, so they didn’t build any of the shops. We added the construction welding shop, and then this last bond; we added an auto shop, and those classes are full. Those kids are getting out and making some good money.

The school and the community’s financial support also enabled Danielle to employ a team to help manage its growing CTE programs.

I was able to hire a full-time workforce development coordinator, so he’s the one really in charge of getting out there and setting up internships. I was able to hire full-time instructional coordinators. Most of the core areas had instructional coaches. But I said, you know, our teachers, most of them don’t come from a

degree in education. They don't go 4 years to be teachers. They come from business and industry. So, we really need an instructional core coach. She's a coordinator position hired to work full time with our teachers on the curriculum. Then I also hired a full-time CTE bookkeeper because we deal with a lot of money and a lot of consumables. So in culinary arts, they have to go buy food all the time, and welding may have to go buy metal. We have a full-time bookkeeper, and I think last year CTE in our district brought in over \$10 million.

Danielle recognized successful CTE programs require internal and external support. She noted the bottom line is quality CTE programs require sufficient funding along with administrative and community support. Without the proper community support, obtaining the necessary funding can be a challenge. Deficiencies in funding potentially lead to poorly implemented CTE programs.

Danielle also explained how maintaining successful programs requires them to monitor and make adjustments. For instance, she noted the changes made in the courses offered to improve their health science program.

Everybody in the world had health science. We actually dropped health science, and we only have biomedical now because the rigger of the courses is just so much higher than health science. It's so much more science-based, so we offer medical assistant certification. When we had both biomed and health science programs, our biomed students were outperforming by leaps and bounds over our health science. They were getting so much more of a science background.

She added that her team continually reviews its programs and implements curricula changes to improve programs.

Impact of CTE on education outcomes and employment opportunities. When discussing the effects of CTE on the lives of her students, Danielle revisited the recent change from offering health science to a biomedical program and how it improved education outcomes. She said, "When we started comparing our biology EOC scores for students who were in biomed versus those that weren't, our biology EOC scores were so

much higher for those who were in biomed because they were getting the science background.” She continued by explaining how CTE improves attendance and graduation rates.

CTE students compare to non-CTE students, and in every category, we are exceeding non-CTE students. I’ve always said, like cosmetology, we are getting the kids to come to school because they have to get 1,000 hours to test. So, we’re helping attendance, but they also have to graduate before they can test. So, we’re helping with graduation rates.

Participation in CTE programs improves test scores, and Danielle also observed improvements in student attendance and high school graduation rates.

When reflecting on the impact of her district’s programs on employment opportunities, Danielle absolutely believes that participating in CTE increases her student’s employment possibilities. She noted how the local community’s inability to meet growing demands for firefighters contributed to creating the district’s fire academy. She also shared that the local fire department hired three recent fire academy graduates.

Understanding of Perkins legislation. According to Danielle, Perkins V implemented new requirements and increased the focus on specific student populations. She said, “This is the first time we had to do the CLNA.” While reporting is not a new requirement, Perkins V now requires districts to submit information on specific performance measures using a uniform template.

In the past, Perkins [required] you have a program evaluation, but they were all over the place all over the state of Texas. Everybody just did some different, so the CLNA was the first time we were all kind of using the same rubric same framework to grade our programs and look at what our community needed.

In addition to reporting requirements, Danielle noted, “We have to have highly-qualified teachers.” She acknowledged that network and recruiting are a few of her strengths, and

she uses those skills to recruit “some of the best teachers in the world.” Since most CTE instructors are industry professionals, some must complete a gateway course to teach math or science courses for credit.

We have to make sure all of our teachers are highly qualified, and they’ve all gone through that course. We have to keep a copy of their certificate showing they have completed it. So, if Texas Education Agency ever walks in the door and comes in to visit, you have to have that documentation showing your teachers meet all these criteria, which we’ve done that.

Despite the new requirements, Danielle believes her district closely aligns with the Perkins V legislation.

David—CTE Advisory Committee Member

David serves on Danielle’s CTE advisory committee, representing David’s sixth year on this committee. He serves as the Fire Chief of the local fire department and manages the district’s fire academy. David was interviewed in early February 2021, and the discussion lasted 20 minutes.

Perception of the personal role. David has a unique position with the district’s CTE programs serving multiple functions. He noted that he’s a member of the advisory committee. He also explained his role stating, “We run the fire academy, and our firefighters do all the instruction.” He ensures the firefighters complete the required course to become certified to be EMS instructors.

Perception of the advisory committee. David described his perception of the advisory committee, saying, “We bring up new ideas.” He explained the committee members help to determine whether the district should consider “new directions or new programs” to identify opportunities to improve or expand the district’s programs.

Practices implemented. Adding the fire academy expanded the growing list of CTE programs. David explained, “The students come to the fire station every day for class.” While the curriculum is designed and tested by the State of Texas, David noted, “We encourage the kids during the summer to ride out on the fire trucks.” While they were unable to conduct ride-alongs last summer, David stressed the importance of cadets participating in them.

Impact of CTE on education outcomes and employment opportunities. When explaining the impact of CTE on students, David said, “When they come out [of the fire academy], they’re ready to be employed. When they graduate, they have their fire certification, which is a year and a half of study, and EMT is the last semester of senior year.” The fire academy’s creation enables David to train and recruit firefighters to fill the community’s growing demand.

Understanding of Perkins legislation. When asked to share his knowledge of the Perkins legislation, David noted that he’s heard of the legislation but is not familiar with specific requirements. His fundamental understanding is Perkins helps fund CTE programs.

Dylan—CTE Instructor

Dylan is an agriculture (Ag) instructor and the Agriculture Lead for District 4. He served in the same capacity for 9 years, 6 with the current school district and 3 with another district. Dylan was interviewed in early February 2021, and the discussion lasted 50 minutes.

Perception of the personal role. Besides being the Ag instructor, Dylan works to coordinate with instructors teaching the same courses from the other two campuses. As a program lead, Dylan also works with the CTE Director to develop and plan CTE course content for the program. He added,

Most of what I end up doing for our CTE program is outside of what I do in class. It's more trying to help other people figure out what's going on or trying to see what I can do to help our program grow and continue to thrive.

He noted, "I learn how to use new technology others are not familiar with or assemble things that need to be put together. For example, the Cosmetology teachers will bring me new barbering chairs to put together and install for them." Many of the functions Dylan performs are above and beyond his job description.

Perception of the advisory committee. While describing his perception of the advisory committee, Dylan explained how the advisory committee supports the district's CTE programs. He said, "We have a strong advisory committee who kind of helps guide [us]." He explained the committee advises on community employment needs and recommends which courses are needed to help students transition to a career after high school graduation. He added, "Our advisory committee does quite a bit to help us kind of develop the direction that we want to go. They've helped us kind of set priorities and set goals for our programs."

In addition to providing guidance, Dylan noted some advisory committee members support programs by sharing their expertise. He commented, "If they want a certain skill taught a certain way, they're really good about coming in and provide training." Dylan also noted one member donates materials and access to his company's equipment. He said, "If he's got scrap material that we can use in the program or if we've

got something that we need to be made that he's got machinery that can do it and we can't do it here."

Practices implemented. Dylan first acknowledged the community's support and the support of the advisory committee members. He shared, "We have a very supportive local community that we've never had a tax issue bond fail, and because of that, we've got great facilities." He described ways he supports CTE programming delivery in his district. He explained how he coordinates day field trips for his students to industry partner's facilities. He said, "We take our kids to see what the sign industry is about." He noted, "We did one field trip the first 2 years, and then the third year, we added two more locations including a local welding company and a heating and air company." Dylan explained that these field trips, for some students, end up being job interviews. He further added, "One business partner tells the students this is what you have to do to work for me; if you can say yes to all these things, come see me, I'll give you a job."

Impact of CTE on education outcomes and employment opportunities. When discussing the effect of their CTE programs on participant education outcomes, Dylan explained, "Students come to hang out with their friends and build something or do something with their hands. I think a lot of kids that buy into those programs would otherwise just disappear." He believes CTE keeps students in school.

In addition to improving student attendance, Dylan expressed his belief that CTE increases employment opportunities for students. He said, "The courses that we offer are something that number one kids are interested in taking, and there's a career field or some way down the road for the kids to benefit from those classes." Offering programs

that align with the community needs enables students to find high-demand jobs when they graduate. Dylan shared, “I think we’ve got some excellent programs. We’ve got a firefighter program; if the kids finished, they’re going to have a job. They’re guaranteed a job interview with the fire department that actually teaches the classes.” Dylan also explained that for some programs, CTE provides students with career options.

Many kids go work as vet techs in the local area; most of our kids in the veterinary program want to be a veterinarian, so a lot of them end up at Texas A&M so they can get into vet school. Vet school is very competitive to get into, and not all of them make it, but all of them have good training. They can go on and be a veterinary technician, go into grooming, or obedience behavior training for dogs, that sort of thing.

In another example, Dylan shared the story of one of his prior students.

One of my students that graduated 2 years ago went to work for a concrete company thinking he was going to be pouring concrete, and now he does their layouts in AutoCAD because he knew a little bit of AutoCAD from class.

Dylan explained CTE also prepares students for what the industry will expect from potential employees.

The American Welding Society drives so much of what is done in welding, and their certifications have to be done on every job you go to. So, even if we get them certified here at school, they have to do the exact same certification when they get out into the industry. However, it gives us an opportunity to prepare them.

Providing the appropriate, industry-grade equipment is equally crucial to preparing students as delivering the proper program content. Dylan argued, “If we’re trying to teach cosmetology out of a folding chair, they’re not going to be ready to go work.”

Properly designed CTE programs lead to increases in employment opportunities for students. He said, “I know, programs like cosmetology, firefighting, and law enforcement, all those programs are pushing out kids that are ready for the industry right away. They’re certified and going straight to work, and they’re having success in their

careers.” Dylan noted he wants his students to be successful. He added, “If we can give kids those skills that set them apart or provide them with experiences that prepare them, I think that helps with the buy-in. I think that helps with us being successful in our programs.”

Understanding of Perkins legislation. Dylan’s knowledge of the Perkins V legislation primarily focused on the financial support provided. He said, “Perkins has been a blessing, I think, to our program; it’s more funds out there, more support available at the national level.” In the following section, the common themes that emerged from the data collected from CTE Program D’s participants is discussed.

Case 4—Analysis of Common Themes

The analysis of CTE Program D participants’ interviews revealed three common themes: advisory committee and community support are essential to CTE programs’ success, the prioritization of local community’s workforce needs allows for alignment of CTE curriculum, and participation in CTE increases employment opportunities for its students. Participants identified other factors critical to their district’s CTE programs success; however, these three themes emerged among at least two participants.

Advisory committee and community support essential. Each of the participants explained the importance of the advisory committee and community support in developing and implementing quality CTE programs. Danielle and Dylan reminisced how the local community supported every single CTE bond presented in recent years. David noted the advisory committee’s role in identifying “new directions or new

programs.” All participants explained the advisory committee helps determine local community needs and what students need to know.

Prioritizes local community’s workforce needs. All three participants believed aligning CTE programs to local workforce needs is a critical component of developing and implementing new programs. Danielle expressed that she attends economic development board meetings to stay informed on what is happening in the business community. She further explained how she continually engages their advisory committee to evaluate their programs and compare them to local workforce needs. David shared how he runs the school’s fire academy created due to the community’s demand for firefighters. Dylan discussed how class field trips to tour industry partner’s facilities are instrumental in providing students with an opportunity to learn about available jobs.

CTE increases employment opportunities. All of the participants agreed that CTE increases employment opportunities for students. Danielle explained aligning CTE programs to community workforce needs qualifies students to meet those local employment demands. David noted the local fire department often hires graduating fire academy cadets. Dylan agreed, stating CTE also provides career options. He further explained CTE prepares students for what the industry will expect and may even qualify them for other related positions that they may also be eligible for based on their training. The cross-case analysis and the subsequent findings of the study are presented in the following section.

Cross-Case Analysis

The initial data analysis process involved examination with-in case analysis in which the data collected from the participants in each district was evaluated. Constant-comparison analysis was employed to assess each case for shared and emerging themes. In addition to with-in case analysis, the implementation fidelity theoretical framework was used to conduct a cross-case evaluation comparing and contrasting the four cases highlighted in this study. Using implementation fidelity, the CTE programs included in this study were evaluated to see how well they aligned with Perkins V's legislative requirements. The effectiveness of advisory committees in developing and implementing CTE programs was also explored.

The implementation fidelity theoretical framework served as a basis for exploring advisory committee role in the development, implementation, and effectiveness of CTE programs. Empirical evidence reveals that many different factors influenced implementation fidelity in education-related interventions (Durlak & DuPre, 2008; Gottfredson & Gottfredson, 2002). Several shared themes emerged amongst the four cases as critical to developing and implementing effective CTE programs. The shared themes included strong community support and advisory committee involvement, improved program alignment to the local community's workforce needs, and high demand for qualified CTE instructors. Studies also indicated school characteristics and program design affected implementation fidelity and CTE programs' quality (Durlak & DuPre, 2008; Gottfredson & Gottfredson, 2002). While there are many factors, school and program characteristics were highlighted and the three shared themes were evaluated in this study.

In the following section, the cross-case analysis is presented by evaluating the four districts, their school characteristics, and respective CTE program designs. Four themes emerged from the cross-case analysis: the diversity in the program designs, strong community support and advisory committee involvement, improved alignment to local workforce needs, and the high demand for qualified CTE instructors.

CTE School Characteristics and Program Design

Research reveals that a program's design can impact the implementation fidelity of education-related interventions (Durlak & DuPre, 2008; Gottfredson & Gottfredson, 2002). Each school district in this study possessed diverse characteristics and employed different CTE program designs. Table 8 provided a summary of enrollment data for each school district and its relative CTE program.

Table 8

Comparison of Enrollment Data by CTE Program

CTE Program	Total District Student Population (est.)	% of Total Student Population Econ. Dis.	Total Students Enrolled in CTE (est.)	CTE Participation as % of Total Secondary Student Population	No. of CTE Career Clusters
A	15,000	90.6	3,000	76.1	13
B	4,300	67.2	700	55.5	12
C	11,000	87.9	1,400	43.7	11
D	21,000	49.0	2,500	41.7	13

Note. Econ. Dis. = Economically Disadvantaged.

CTE Program A design, managed by a CTE director, covered four schools (two high schools and two magnet schools); each appointed a Dean of Academies with separate, independent advisory committees. While three districts offered CTE programs only at the high school level, CTE Program B extended its programs to include a STEAM academy for junior high school students. Even though both CTE Program C and CTE Program D designs included a CTE director who coordinated efforts for one advisory committee for the district, CTE Program C covered one high school. In comparison, CTE Program D expanded its career clusters across three high schools. Of the four programs examined, two programs offered 13 career clusters, one reported 12, and one showed 11 career clusters. The number of CTE participants ranged from 41.7% to 76.1% district's secondary (Grades 9 -12) student population. CTE Program A, which reported the largest percentage with 76.1% of its secondary student population as participants, also noted 90.6% of the district's students as economically disadvantaged.

Despite the diverse program designs, three of the programs reported having met or exceeded three Perkins V performance indicators. One CTE program noted having achieved four indicators (see Table 9).

Similarities in the number of indicators each district met or exceeded suggests the design of these CTE programs does not materially impact, or more importantly restrict, program performance. While the program designs may be critical to attract and engage student participation in the respective communities, the different designs did not appear to contribute to one district being more successful at meeting Perkins V performance indicators than any of the other districts examined in this study.

Table 9

Met or Exceeded Perkins V Performance Indicators—Comparison Among Programs

Indicator	Name	CTE Programs			
		A	B	C	D
1S1	4-Year Graduation Rate		X	X	X
2S1	Academic Proficiency in Reading/Language Arts		X		X
2S2	Academic Proficiency in Mathematics				
2S3	Academic Proficiency in Science		X		
3S1	Post-Program Placement	X			X
4S1	Non-Traditional Program Concentration			X	
5S1	Program Quality—Attained Recognized	X		X	
5S4	Program Quality—CTE Completer	X	X		

Strong community support and advisory committee involvement. Perkins V required all participating CTE programs to engage community partners to serve on their mandated advisory committees. While districts reported varied levels of community support and advisory committee involvement, all the districts reported having an active committee(s) to support their CTE programs. All districts described the significance of advisory committee advice and feedback in developing and implementing successful CTE programs. One district, CTE Program A, with multiple committees, acknowledged that their advisory committees provided more than advice and, in some cases, actively participated in developing the CTE curriculum. Not only did all of the districts adhere to

the compulsory advisory committee Perkins V requirement, but they all also reported much of their CTE programs' success stemmed from their advisory committee involvement.

Improved alignment to local community's workforce needs. Perkins V addressed the growing demand for better employee preparedness by requiring advisory committee involvement in developing innovative programs that align with state, regional, and local community needs (TEA, 2020c). Each district described its advisory committees as consisting of several community partners with diverse knowledge and years of experience representing various industries. The improved engagement from diverse community partners enabled school districts to prepare to meet their respective community's employment needs better. As illustrated in Table 10, each district reported its top four career clusters based on the number of CTE learners enrolled.

CTE administrators and instructors interviewed acknowledged that many of the most recent CTE programs implemented in their district resulted from advisory committee members expressing local employment needs, such as a lack of certified EMS personnel and firefighters. In each instance, the district launched an industry-specific academy managed by the local EMS or fire department.

High demand for qualified CTE instructors. The newly enacted Perkins V legislation increased focus on attracting and recruiting qualified CTE instructors (TEA, 2020c). According to participants interviewed for this study, finding and retaining qualified instructors continues to be a challenge.

Table 10

Comparison of Top Career Clusters by CTE Program

State Career Cluster by District Rank	CTE Program			
	A	B	C	D
1	Health Science	Health Science	Business, Marketing and Finance	Science, Technology, Engineering and Mathematics
2	Law and Public Service	Science, Technology, Engineering and Mathematics	Health Science	Health Science
3	Arts, Audio Visual Technology and Communication	Agriculture, Food and Natural Resources	Hospitality and Tourism	Law and Public Service
4	Business, Marketing and Finance	Business, Marketing and Finance	Arts, Audio Visual Technology and Communication	Arts, Audio Visual Technology and Communication

Many participants cited secondary education salaries' inability to compete with industry salaries offered for similar years of experience as the primary factor contributing to the struggle. Failure to attract and retain qualified CTE instructors significantly impacts the ability to provide new programs and the quality of programs currently offered. In the next section, the data based on a review of the literature are evaluated.

Analyzing Results from Literature Perspective

All participants in this study shared beliefs or identified practices aligned with themes found in the literature review. Common themes which emerged from the literature review and case analysis included the significance of aligning programs with employment needs (Carnevale et al., 2013; Carnevale et al., 2018; Martinez et al., 2016; U.S. Bureau of Labor Statistics, 2018), the argument that CTE prepares young people for careers (Moyer et al., 2017; U.S. Department of Education, 2018), and the belief that advisory committee involvement improves the quality of CTE programs (Dyer & Williams, 1991; Olfert, 2000; Teitel, 1994; Threeton, 2006),

Significance of aligning programs with employment needs. All districts examined in this study described the critical role its advisory committees played in identifying and communicating local employment needs. According to employment reports, skilled workers' demand will continue to increase (Carnevale et al., 2013). Perkins V addressed this growing employment gap in its most recently reauthorized legislation and required CTE programs ensure their programs properly align with high-wage, in-demand careers as identified within their respective communities (TEA, 2020c). This added focus results in meaningful connections between education-related interventions and local employment needs.

CTE prepares young people for careers. The renewed focus on CTE led to improved program quality and increased federal funding (U.S. Department of Education, 2018). This increased investment enabled districts to offer various career clusters better aligned with local employment needs. Improved advisory committee involvement led to

expanded offerings of career clusters and improved insight into the knowledge and skills students will need to succeed in their chosen career path (Olfert, 2000; Teitel, 1994). Research revealed hands-on, real-world experience improved academic performance and increased employment opportunities (Moyer et al., 2017).

Advisory committee involvement improves the quality of CTE programs. All the districts represented in the study noted their advisory committee members' diverse characteristics and their significance in their CTE programs' success. The literature described advisory committees' role, citing the diverse knowledge and expertise improved program curriculum, ensured relevancy, and increased accountability (Olfert, 2000). All participants interviewed shared similar sentiments when describing their advisory committee's importance and its effectiveness on their CTE programs. In the next section, the cross-case analysis findings were used to present the answers to the research questions.

Answering the Research Questions

In this qualitative research study, the researcher sought to answer the central research question: What is the role of advisory committees in the implementation and ongoing oversight of Career Technology Education (CTE) programs offered by Central Texas public independent school districts (ISD)? I provided responses to the central question and four secondary questions using data collected from participant interviews and reports from the contributing districts.

Participant responses to the central research question revealed the significance of advisory committee support in providing guidance and advice for developing,

implementing, and managing CTE programs. All districts reportedly adhered to Perkins V's requirement to engage a diverse group of stakeholders in their CTE programs. Three of the districts described their advisory committees as being actively involved in designing and implementing CTE programs. Despite the level of involvement, all participants expressed the importance of their committee's participation in governing the existing programs.

Participants interviewed for this study commented that the collective community and industry knowledge on each advisory committee provided familiarity with their respective regional and employment-related needs. Participants also noted many advisory committee members often interacted with students sharing their personal experiences, explaining career opportunities, and detailing industry expectations. In some instances, committee members shared their expertise, providing instruction for students on job-specific skills essential for success in that career.

Advisory committee members also brought with them access to their community contacts and business relationships. One district explained how a committee member expressed the need for the CTE program to purchase a trailer with a business associate. The associate then volunteered to donate the trailer to the school. Advisory committees, in essence, expanded the CTE programs' exposure within the community, and its members served as advocates for the programs.

The same district employed a unique program design that engaged smaller, more industry-specific advisory committees. Each of the four schools in this district reportedly formed its advisory committee to oversee the programs offered at that particular school. Committee members on the smaller advisory boards expressed feeling involved, engaged,

and valued. While any advisory committee involvement improves CTE programs' quality, the smaller, industry-specific advisory committees highlighted in this study appeared to be more engaged and even contributed financial assistance to ensure the successful implementation of desired CTE programs. The other three districts which reported having a single advisory committee with a larger number of members governing all the CTE programs for the entire district did not seem to have the same level of financial commitment from their board members.

Sub-Question 1

What do advisory committee members, CTE program administrators, and CTE instructors perceive is their role regarding their ISD's CTE programs?

When asked about their perceived role regarding CTE programs, advisory committee members expressed how they believed part of their role included guiding program administrators that, in some cases, identified the need for new programs. Two districts noted implementing CTE programs, an EMS and a fire academy, based on committee member recommendations. Members also described their contributions to the district included sharing industry expectations for future employees to ensure CTE programs offered relevant curriculum. Both advisory committee members and CTE administrators believed their role involved advocating for CTE in the community. CTE program administrators also noted their responsibility for developing innovative programs, being engaged in the community, and understanding how their district's CTE programs impact their communities. All CTE administrators argued they worked to establish the goals, objectives, and expectations while constantly evaluating and monitoring to ensure the programs meet or exceed those expectations. CTE

administrators and instructors shared that their involvement included providing innovative programs designed to attract and prepare students to further their education or pursue a career. Both administrators and instructors expressed the importance of building CTE programs supported by industry-based certifications and internships. While specific roles vary, the primary goals for all parties involved in CTE programs encompassed recruiting and engaging participants, including students and instructors, preparing young people for their futures, and aligning programs to meet local community employment needs.

Sub-Question 2

What do advisory committee members, CTE program administrators, and CTE instructors believe about the effectiveness of their ISD's advisory committee in developing and implementing CTE programs?

All participants responded that they believed their district's advisory committees improved the quality of their CTE programs. Advisory committees provided knowledge about industry-related skills that needed to be incorporated into curriculums to better prepare students for their career paths. Two districts reported partnering with community organizations such as the local EMS and fire department to deliver CTE programs.

For the entire district, advisory committee members also served as spokespeople in the community, recruiting members and advocating for CTE. Participants noted that their programs' success required community support, and advisory committees helped build that support network.

Sub-Question 3

How well do advisory committee members, CTE program administrators, and CTE instructors perceive their school's CTE program aligns with Perkins V legislative requirements?

While a few participants identified specific Perkins V legislative requirements, all of them understood the importance of Perkins V funding in delivering CTE programs in their district. All participants noted the role of ensuring compliance with Perkins V legislative requirements ultimately remained with the district's CTE director and administrators. All CTE directors or administrators described their school's efforts to comply with Perkins V requirements. They each identified offering industry-based certifications as essential for effective CTE programs. The data collected revealed industry certifications qualified CTE students for high-wage, in-demand jobs in their local communities.

All the districts provided multiple CTE career clusters. The diversity in CTE offerings attracted a wide range of students improving both equity and access in their programs. Furthermore, participants explained how their programs incorporated advisory committee feedback to identify and align programs with local community employment demands.

Sub-Question 4

What do advisory committee members, CTE program administrators, and CTE instructors believe about the effectiveness of their school's CTE program on education outcomes and employment opportunities?

Every participant acknowledged the positive impact of CTE on education outcomes and employment opportunities. Participants noted how participation in CTE kept students in school, thus improving retention and graduation rates. All districts reported their CTE students performed better than non-CTE students in most subject areas. The reasons cited for higher academic performance included CTE programs' ability to make meaningful connections between education and future employment and more engaged students participating in hands-on, real-world experiences.

All participants noted the increased employment opportunities afforded to their district's CTE students. Industry-based certifications qualified CTE students to fill local community employment needs. Many CTE programs offered practicums and internships that enabled participants to improve skills while gaining experience. While each district identified areas noted for improvement, all participants believed CTE programs improved its students' lives. The study's implications and recommendations for consideration are presented in the following section.

Implications and Recommendations

With this multiple-case study, the researcher sought to understand CTE advisory committees' impact on the implementation and ongoing oversight of CTE programs offered by Central Texas public ISDs. Little research exists describing the impact of advisory committee involvement in developing and implementing CTE programs, specifically related to the implementation fidelity of Perkins V's legislative requirements. This study's results provided implications and recommendations for legislators, community partners, and CTE program administrators.

Legislators

Legislative mandates, such as the one requiring CTE programs to have advisory committees and to engage community partners in the delivery of its programs, are designed to improve the implementation fidelity of government-funded programs. Education-related programs implemented with a high degree of fidelity prove to be more successful than those with a low degree of fidelity. Thus, legislators must ensure fidelity of implementation before an intervention can be deemed successful.

Expanded access to CTE programs generally occurred as a result of increased federal funding. Research studies, including the results of this study, reported CTE improves education outcomes and employment opportunities (Hughes et al., 2001; Kazis & Pennington, 1999). Thus, the proven benefit of implementing CTE programs warrants consideration for funding earlier intervention. Offering CTE programs in elementary school would enable students to make meaningful connections between their education and future careers at a much earlier age. Such interventions could improve student engagement and lead to even higher attendance, retention, and high school graduation rates.

One critical aspect of CTE programs requires districts to attract and retain qualified instructors to deliver high-quality curriculums. Every district highlighted in this study expressed the challenges associated with recruiting qualified instructors. Many districts struggled to compete with high industry salaries compared to educator salaries leading to high turnover or improperly prepared instructors. Thus, legislators should also consider supporting a pay scale for CTE instructors commensurate with their CTE industry-related experience to better attract and retain quality instructors.

Community Partners

CTE is a collaborative effort and requires a supportive community and active partnerships to be successful. Building a qualified workforce requires the business community's involvement to identify and meet local employment demands. Also, the business community provides insight into essential knowledge and skills needed for success in the industry. Ensuring that information is appropriately aligned with the course curriculum increases student preparedness and improves employment opportunities.

While most community partners focus their attention on ensuring CTE programs address their industries' employment demands, some consideration should be given to communities without a feeder school or employee pipeline to meet their employment needs. Some communities' employment demands are greater than can be supported by the schools in that area. Therefore, community partners should be mindful of pathways that could lead to high-wage, in-demand careers for their students even if those positions are not available in that community.

CTE Administrators

Administrators are responsible for developing and implementing CTE programs. They establish the program goals, objectives, and expectations, constantly evaluating and monitoring to ensure the programs meet or exceed those expectations. While all of the participants in this study noted advisory committee involvement in identifying programs and providing program-relevant curriculums, administrators should consider incorporating a review of implementation fidelity into evaluating their programs' success.

Analysis of the CTE programs highlighted in this study revealed a CTE program's design does not appear to impact success in meeting or exceeding performance

indicators. Though each district consisted of a different program structure, three met or exceeded three state performance indicators, while one program reported success with four indicators. However, the design of the advisory committee may impact program outcomes. The three districts with one large advisory committee that oversaw all of its CTE programs reported little volunteered financial support from committee members when implementing CTE programs they recommended. However, CTE program A consisted of separate advisory committees for each of the four schools in the district reported a different experience. Members of their advisory committee provided financial donations on multiple occasions. Committee members expressed sentiments of being more engaged, feeling more connected, and believing their opinions are valued. Therefore, administrators should evaluate whether their CTE programs could benefit from having multiple, smaller, more industry-specific advisory committees.

Conclusion

In Chapter Four, the research findings for each case were presented. Implementation fidelity was used to conduct a cross-case analysis to compare and contrast themes shared among the districts. The study's findings revealed all participants believed advisory committee involvement improved their district's CTE program quality. The results also indicated advisory committees help administrators align CTE programs with local community needs and prepare students for their future careers. Finally, the findings highlight each district's efforts to comply with Perkins V's legislative requirements (TEA, 2020c). While participants shared the success of their district's CTE program, they also noted areas that require additional consideration. In Chapter Five, an Executive Summary and the Findings Distribution Proposal is presented.

CHAPTER FIVE

Distribution of Findings

Executive Summary

The executive summary provides a brief overview of the research study including a description of the methodology used, analysis of the research conducted, and a summary of the reported findings. The executive summary contains four parts: introduction, overview of data collection and analysis procedures, summary of key findings, and informed recommendations.

U.S. labor markets predict growth in future job opportunities (U.S. Bureau of Labor Statistics, 2018). While these figures illustrate increased job openings in several industries, similar reports reveal an estimated 23 million worker shortage by 2025 (Carnevale et al., 2013). These employment projections show a critical need for a more skilled, educated workforce. For legislators, the anticipated shortage intensified the focus on college and career readiness for high school students. The widening skills gap also triggered shifts in federal funding priorities. This funding shift increased federal money for CTE programs and spurred a need for increased accountability, contributing to a greater emphasis on advisory committee involvement.

Empirical evidence from research studies supports the need for CTE programs and reports on the positive impact that such programs have on improving student engagement, increasing high school graduations, and reducing dropout rates (Alexander & Hirsh 2012; Bakar et al., 2013; Bowers-Brown & Berry, 2005). Additional research

explains the rationale for the Perkins V legislative requirement mandating advisory committee involvement in CTE programs (TEA, 2020c). Evidence shows advisory committees enhance content relevance, improve program accountability, and ensure efficient use of federal, state, local funds (Dyer & Williams, 1991; Teitel, 1994). However, few studies have explored the impact of advisory committee involvement in CTE programs, specifically improving education outcomes and increasing employment opportunities. Even fewer studies utilized implementation fidelity as a framework to evaluate the implementation of education-related interventions to determine how closely programs adhere to legislative requirements and how well they align with the tested, evidence-based interventions.

The purpose of this study was to understand better the perceived role of advisory committees in the implementation and ongoing oversight of CTE programs and the perceived effectiveness of CTE programs on education outcomes and related employment opportunities for its participants. This researcher sought to answer the central research question—What is the role of advisory committees in the implementation and ongoing oversight of CTE programs offered by Central Texas public independent school districts (ISD)? Also, there were four secondary questions posed for consideration:

1. What do advisory committee members, CTE program administrators, and CTE instructors perceive is their role regarding their ISD's CTE programs?
2. What do advisory committee members, CTE program administrators, and CTE instructors believe about the effectiveness of their ISD's advisory committee in developing and implementing CTE programs?
3. How well do advisory committee members, CTE program administrators, and CTE instructors perceive their school's CTE program aligns with Perkins V legislative requirements?

4. What do advisory committee members, CTE program administrators, and CTE instructors believe about the effectiveness of their school's CTE program on education outcomes and employment opportunities?

Overview of Data Collection and Analysis Procedures

To conduct the study, the researcher employed a qualitative multiple-case approach. In addition to reviewing internal documents and external reports, the researcher conducted semi-structured interviews with 15 participants from four Central Texas school districts. The researcher conducted semi-structured interviews with one advisory committee member, the district's CTE director or administrator, and one CTE instructor from three selected programs. To better understand CTE Program A's complex nature, which consisted of four advisory committees, the researcher interviewed six participants which included the district's Dean of Academies from one of the high schools and one of the academies and an advisory committee member from each of those programs.

The researcher gathered documents, conducted the interviews, and then transcribed and analyzed all the information. To manage the significant amount of thick, rich data collected, the researcher used spiraling and coding to identify patterns and emerging themes. The researcher then grouped, analyzed, and categorized the coded data to reduce the large amounts of data into smaller, more meaningful themes among and then across the four cases.

The researcher used member checking and triangulation to ensure narratives accurately reflected participants' experiences. The researcher employed constant comparison analysis to assess each case for shared and emerging themes. In addition to with-in case analysis, the implementation fidelity theoretical framework provided a basis for conducting a cross-case evaluation comparing and contrasting the four cases

highlighted in this study. The implementation fidelity theoretical framework allowed the researcher to explore the critical components that significantly impacted the development, implementation, and effectiveness of the CTE programs.

Summary of Key Findings

Utilizing the implementation fidelity theoretical framework to conduct a cross-case analysis enabled the researcher to identify shared themes that emerged across the four cases. One of the shared themes identified strong community support and advisory committee involvement as essential to CTE programs' success. A second common theme acknowledged the value of improved program alignment to the local community's workforce needs to prepare students better for the high-wage, in-demand careers available due to CTE participation. Finally, the high demand for qualified CTE instructors also emerged as a common theme and an opportunity for programs to develop and explore innovative ways to address the issue.

Similarly, analysis of the data from the literature perspective revealed common themes. Those themes included the significance of aligning CTE programs with local employment needs (Carnevale et al., 2013; Carnevale et al., 2018; Martinez et al., 2017; U.S. Bureau of Labor Statistics, 2018), the evidence-based argument that CTE prepares young people for careers (Moyer et al., 2017; U.S. Department of Education, 2002), and the belief that advisory committee involvement improves the quality of CTE programs (Dyer & Williams, 1991; Olfert, 2000; Teitel, 1994; Threeton, 2006).

The final phase of the data analysis process involved compiling all collected data to answer the stated research questions. All analyzed data contributed to answering those

research questions. Table 11 details a summary of the research questions and the resulting responses.

Informed Recommendations

Based on the data and findings presented in Chapter 4, the researcher developed recommendations for further consideration. The researcher identified recommendations for legislators, community partners, and CTE administrators. While there are many stakeholders involved in the development and implementation of CTE programs, these stakeholders directly impacted the programs highlighted in this study.

Legislators

To ensure CTE programs achieve their legislative goals, legislators should consider requiring implementation fidelity before deeming CTE programs' success or lack thereof. Based on the research suggesting the positive impact CTE has on education outcomes and employment opportunities, legislators should also advocate for additional funding to implement CTE program experiences beginning with elementary-aged students. Early interventions would enable students to make meaningful connections between their education and future careers at a much earlier age. Finally, one of the challenges shared by at least one participant from each district included the difficulty experienced attracting and retaining qualified instructors. To address this issue, legislators should support a pay scale for CTE instructors commensurate with their CTE industry-related experience to attract and retain quality instructors.

Community Partners

Community partners are an essential component of CTE programs. In addition to serving on advisory committees, members advocate for CTE in the community. Advisory committees provide invaluable guidance to administrators on the local community's employment needs. In some cases, committee members offer internships for CTE participants and employment opportunities following high school graduation.

One recommendation is community partners should be mindful of pathways that could lead to high-wage, in-demand careers for their students, even if those positions are not available in their community. Also, community partners should support proposed local bond issuances with funds designated for CTE programs to ensure districts have adequate funding to provide quality programs for students and the community. Finally, community members should consider offering internships to enable students to gain valuable industry experience.

CTE Administrators

This study's findings revealed CTE administrators always look for opportunities to improve existing programs or to develop and implement new programs. Administrators should consider incorporating implementation fidelity into the evaluation of their programs' success. Many factors contribute to the success of CTE programs, such as program design. The design of the district's advisory committee appeared to impact member engagement. As such, administrators should evaluate whether their CTE programs could benefit from having multiple, smaller, more industry-specific advisory committees. The CLNA performance indicators revealed that all the districts should consider ways to improve their district's ratings.

Table 11

Summary of Answering the Research Questions

Questions	Answers to the Question
Central Question: What is the role of advisory committees in the implementation and ongoing oversight of Career Technology Education (CTE) programs offered by Central Texas public independent school districts (ISD)?	1. Advisory committees provide guidance and advice. 2. Committee members possess collective community and industry knowledge. 3. Advisory committee understanding of local community's employment needs is instrumental in aligning programs with community needs. 4. Programs gain access to committee members' community contacts and business relationships. 5. Financial support is more evident among smaller, industry-specific advisory committees.
Sub-Question 1: What do advisory committee members, CTE program administrators, and CTE instructors perceive is their role regarding their ISD's CTE programs?	1. Guiding program administrators. 2. Identify the need for new programs or changes to the existing curriculum. 3. Advocating for CTE in the community. 4. Developing innovative programs. 5. Being engaged in the community and understanding how the program impacts their respective community. 6. Attract and retain students and qualified instructors.
Sub-Question 2: What do advisory committee members, CTE program administrators, and CTE instructors believe about the effectiveness of their ISD's advisory committee in developing and implementing CTE programs?	1. Advisory committees provide knowledge on essential industry-related skills to incorporate in curriculums. 2. Committee members also served as spokespeople in the community, recruiting members and advocating for CTE.
Sub-Question 3: How well do advisory committee members, CTE program administrators, and CTE instructors perceive their school's CTE program aligns with Perkins V's legislative requirements?	1. Advisory committee feedback to identify and align programs with local community employment demands. 2. Industry-based certifications are essential for effective CTE programs. 3. Diversity in CTE offerings attracted a wide range of students improving both equity and access in their programs.
Sub-Question 4: What do advisory committee members, CTE program administrators, and CTE instructors believe about the effectiveness of their school's CTE program on education outcomes and employment opportunities?	1. CTE encouraged students to stay in school, improving retention and graduation rates. 2. Industry-based certifications increased employment opportunities. 3. Participants improve skills while gaining experience.

An additional recommendation would be to ensure CTE programs and academic core curriculums are appropriately aligned to improve CTE performance indicators. Finally, to address the challenge of competing with industry salaries, CTE administrators should consider developing a community partnership that recruits industry professionals and provides the necessary training to encourage them to become certified to provide student instruction. While these recommendations identify a specific stakeholder as the responsible party, many require collaborative support from all of the vested parties.

Findings Distribution Proposal

The purpose of developing a distribution proposal includes contributing to the current body of research on CTE and its impact on improving education outcomes and increasing future employment opportunities, sharing the study and its findings with the public, and improving the collaboration and communication between stakeholders. Effective dissemination of research findings ensures appropriately communicated information to stakeholders interested in the conclusions or who may benefit from the study's findings. In developing the findings distribution proposal, the researcher considered the target audience, proposed distribution method and venue, and type of distribution materials.

Target Audience

The development and implementation of effective education-related interventions require the involvement of many different stakeholders. CTE programs are one such type of education intervention that requires a collaborative effort involving legislators, CTE administrators, and community partners. Also, the researcher intends to use this study to

apply for grant money to fund the development of a pilot intervention for a summer career exploration institute focused on elementary-aged students.

The recently reauthorized Perkins V legislation provided funding to support the development and delivery of CTE programming (TEA, 2020c). Perkins V also included legislative guidance requiring the involvement of advisory committees for federally funded CTE programs. Given the increased federal funding and the advisory committee mandate, legislators, particularly state policymakers, may find the discussion regarding implementation fidelity of legislative mandates valuable. This study's results may also provide critical insight that could guide CTE administrators in ensuring effective organization of their advisory committee's structure, properly aligning CTE and academic core curriculums, and supporting the recruitment and retention of qualified instructors and CTE concentrators. Finally, the researcher seeks to provide a public appeal to encourage community support for local bond packages to expand CTE and advocate for involvement in CTE programs.

Proposed Distribution Method and Venue

Selecting the appropriate distribution method is critical to disseminating the findings of this study. The researcher determined the best approach would be to employ multiple distribution channels. One distribution channel would be to circulate the research study via email to CTE directors of each district that participated in the research and others within the state. Also, the researcher plans to submit the study's findings to Texas legislators and members of the Texas Education Agency's Career and Technical Education Department who are responsible for coordinating and monitoring the state's CTE efforts. In the information provided to stakeholders, the researcher plans to notify

recipients of the researcher's availability to present the research study at advisory committee or school board meetings.

The researcher will develop a professional presentation highlighting the study's key findings and resulting recommendations and then exploring potential action items specific to that particular audience. The researcher anticipates the presentation would be approximately two hours in length. The goal of the presentation would be to engage the audience and motivate them to action by encouraging them to identify opportunities to improve their district's CTE programs and develop an action plan for them to implement.

Distribution Materials

To accomplish the desired goal of contributing to the body of knowledge on CTE and sharing the study and its findings with the community, the researcher intends to develop a policy brief, poster, and professional presentation. These distribution materials will help the researcher conduct presentations for interested advisory committees and school boards desiring to know more about the research and subsequent findings.

Conclusion

With this research study, the researcher explored the role of advisory committees in the implementation and ongoing oversight of CTE programs offered by Central Texas public ISDs. The CTE programs selected for this study each possessed unique and different program structures, highlighting the various ways in which Central Texas school districts offer CTE programs. Although the study did not show significantly different education outcomes according to CLNA performance indicators, the study did reveal the advisory committee's structure could impact member engagement. The study results

revealed smaller, industry-specific committees seemed more actively engaged and more willing to support their programs' proposed goals and objectives financially.

The study results also highlighted that education-related intervention could be expensive and challenging to implement, explaining why many of these interventions lack implementation fidelity. To illustrate the importance of fidelity in effectively implementing an education-related intervention, the researcher used implementation fidelity to evaluate how well the selected CTE programs aligned with Perkins V's legislative requirements. All districts reported faithfully adhering to the advisory committee mandate engaging a diverse group of community partners representing various industries as committee members. All participants described their advisory committee's involvement in ensuring CTE programs aligned with their local community's employment needs. Participants also acknowledged their district's emphasis on offering industry-based certifications for as many CTE programs as possible. All participants noted their efforts to incorporate these critical areas into their CTE programs improved their programs' quality and improved employment opportunities for their students.

The United States is currently facing a 23 million educated-worker shortage by 2025 (Carnevale et al., 2013). While CTE is not a new program, recent legislative changes, including the 2018 reauthorization of Perkins V, emphasize improving program quality (TEA, 2020c). The research findings and recommendations presented in this study provide helpful guidance for stakeholders seeking to assess and improve CTE programs' quality.

APPENDICES

APPENDIX A

IRB Notice of Exemption



INSTITUTIONAL REVIEW BOARD – PROTECTION OF HUMAN SUBJECTS IN RESEARCH

NOTICE OF EXEMPTION FROM IRB REVIEW

Principal Investigator: Adele Williams
Study Title: Career Exploration from Policy to Practice: A Qualitative Study on the Influence of Advisory Committees on Education Outcomes and Future Employment Outlook
IRB Reference #: 1694427
Date of Determination: December 09, 2020
Exemption Category: 45 CFR 46.104(d)(2)

The above referenced human subjects research project has been determined to be EXEMPT from review by the Baylor University Institutional Review Board (IRB) according to federal regulation 45 CFR 46.104(d)(2): Research involving the use of educational tests, survey procedures, interview procedures or observation of public behavior.

The following documents were reviewed:

- IRB Application, submitted on 12/08/2020
- Protocol, dated 12/07/2020
- Consent Form, dated 12/07/2020
- Recruitment Letter, submitted on 12/08/2020
- Advisory Committee Interview Protocol, submitted on 12/07/2020
- CTE Administrator Interview Protocol, submitted on 12/07/2020
- CTE Instructor Interview Protocol, submitted on 12/07/2020
- [REDACTED] Letter of Support, submitted on 12/08/2020

This exemption is limited to the activities described in the submitted materials. If the research is modified, you must contact this office to determine whether your research is still eligible for exemption prior to implementing the modifications.

If you have any questions, please contact the office at (254) 710-3708 or IRB@baylor.edu

Sincerely,

[REDACTED]
Deborah L. Holland, JD, MPH, CHRC, CHPC
Assistant Vice Provost for Research, Research Compliance

OFFICE OF THE VICE PROVOST FOR RESEARCH | RESEARCH COMPLIANCE
One Bear Place #97310 • Waco, TX 76798-7310 • (254) 710-3708

APPENDIX B

Interview Protocols

CTE Advisory Committee Member

OBJECTIVE:

The interview will stimulate discussion about the Career Technology Education (CTE) advisory committee member's experiences with the implementation of the CTE programs in their public independent school district (ISD). The objective of the interview will be to share the factors that may have facilitated or impeded the implementation of the program and to understand the role of advisory committees in the implementation and ongoing oversight of CTE programs offered by ISDs located in Central Texas.

INTERVIEW GUIDE:

The questions below will provide the framework for the interview. The use of open-ended questions allows the participant time to communicate their beliefs, opinions, and perspectives. Answers provided by CTE Program advisory committee members may impact the order in which the questions are asked; however, the discussion will focus on these primary questions. Subsequent questions and follow-up probes may be used, when appropriate, to gather further information as the discussion progresses and to explore any emerging ideas further as they unfold.

INTRODUCTION:

The purpose of this interview is to allow CTE advisory committee members and opportunity to share their experiences with CTE programs in their communities as well as

their perceptions of advisory committees and their role in implementing these programs. Please share your honest opinions, positive or negative. This information will enable us to understand the role of advisory committees in the implementation and ongoing oversight of the CTE programs.

This interview is being recorded for research purposes; however, your name will be removed and disassociated with any data collected. As a reminder, please know that you do not have to answer any question that makes you uncomfortable.

QUESTIONS:

1. What do you perceive is your role regarding your ISD's CTE programs?
2. Describe ways you support the delivery of CTE programming in your ISD.
3. What do you believe about the effectiveness of your ISD's advisory committee in developing and implementing CTE programs?
4. In what ways does your program's advisory committee support the priorities, goals, and practices of the program?
5. What is your understanding of The Strengthening Career and Technical Education for the 21st Century Act (Perkins V) legislation?
6. On a scale of 1 to 10, how well do you perceive your school's CTE program aligns with Perkins V legislative requirements?
7. Based on your response to question 6, what are at least three characteristics that support your rating?
8. What do you believe about the effectiveness of your school's CTE program on education outcomes and employment opportunities for students participating in these programs?
9. What factors do you believe are essential to the implementation of your CTE programs?
10. What factors do you believe makes your CTE programs difficult to implement?
11. What areas, if any, do you believe your ISD could implement or modify to improve your CTE programs?
12. Have you noticed any changes in students following participation in CTE programming offered by your school?

CTE Program Administrators

OBJECTIVE:

The interview will stimulate discussion about the Career Technology Education (CTE) Program Administrator's experiences with the implementation of the CTE programs in their public independent school district (ISD). The objective of the interview will be to share the factors that may have facilitated or impeded the implementation of the program and to understand the role of advisory committees in the implementation and ongoing oversight of CTE programs offered by ISDs located in Central Texas.

INTERVIEW GUIDE:

The questions below will provide the framework for the interview. The use of open-ended questions allows the participant time to communicate their beliefs, opinions, and perspectives. Answers provided by CTE Program Administrator may impact the order in which the questions are asked; however, the discussion will focus on these primary questions. Subsequent questions and follow-up probes may be used, when appropriate, to gather further information as the discussion progresses and to explore any emerging ideas further as they unfold.

INTRODUCTION:

The purpose of this interview is to allow CTE Administrators an opportunity to share their experiences in teaching CTE programs in their ISD as well as their perceptions of advisory committees and their role in implementing these programs. Please share your honest opinions, positive or negative. This information will enable us to understand the role of advisory committees in the implementation and ongoing oversight of the (CTE) programs.

This interview is being recorded for research purposes; however, your name will be removed and disassociated with any data collected. As a reminder, please know that you do not have to answer any question that makes you uncomfortable.

QUESTIONS:

1. What do you perceive is your role regarding your ISD's CTE programs?
2. Describe ways you support the delivery of CTE programming in your ISD.
3. What do you believe about the effectiveness of your ISD's advisory committee in developing and implementing CTE programs?
4. In what ways does your program's advisory committee support the priorities, goals, and practices of the program?
5. What is your understanding of The Strengthening Career and Technical Education for the 21st Century Act (Perkins V) legislation?
6. On a scale of 1 to 10, how well do you perceive your school's CTE program aligns with Perkins V legislative requirements?
7. Based on your response to question 6, what are at least three characteristics that support your rating?
8. What do you believe about the effectiveness of your school's CTE program on education outcomes and employment opportunities for students participating in these programs?
9. What factors do you believe are essential to the implementation of your CTE programs?
10. What factors do you believe makes your CTE programs difficult to implement?
11. What areas, if any, do you believe your ISD could implement or modify to improve your CTE programs?
12. Have you noticed any changes in students following participation in CTE programming offered by your school?

CTE Instructor

OBJECTIVE:

The interview will stimulate discussion about the Career Technology Education (CTE) instructor's experiences with the teaching and implementation of the CTE programs in their public independent school district (ISD). The objective of the interview will be to share the factors that may have facilitated or impeded the implementation of the program and to understand the role of advisory committees in the implementation and ongoing oversight of CTE programs offered by ISDs located in Central Texas.

INTERVIEW GUIDE:

The questions below will provide the framework for the interview. The use of open-ended questions allows the participant time to communicate their beliefs, opinions, and perspectives. Answers provided by CTE instructors may impact the order in which the questions are asked; however, the discussion will focus on these primary questions. Subsequent questions and follow-up probes may be used, when appropriate, to gather further information as the discussion progresses and to explore any emerging ideas further as they unfold.

INTRODUCTION:

The purpose of this interview is to allow CTE instructors an opportunity to share their experiences in teaching CTE programs in their ISD as well as their perceptions of advisory committees and their role in implementing these programs. Please share your honest opinions, positive or negative. This information will enable us to understand the role of advisory committees in the implementation and ongoing oversight of the CTE programs.

This interview is being recorded for research purposes; however, your name will be removed and disassociated with any data collected. As a reminder, please know that you do not have to answer any question that makes you uncomfortable.

QUESTIONS:

1. What do you perceive is your role regarding your ISD's CTE programs?
2. Describe ways you support the delivery of CTE programming in your ISD.
3. What do you believe about the effectiveness of your ISD's advisory committee in developing and implementing CTE programs?
4. In what ways does your program's advisory committee support the priorities, goals, and practices of the program?
5. What is your understanding of The Strengthening Career and Technical Education for the 21st Century Act (Perkins V) legislation?
6. On a scale of 1 to 10, how well do you perceive your school's CTE program aligns with Perkins V legislative requirements?
7. Based on your response to question 6, what are at least three characteristics that support your rating?
8. What do you believe about the effectiveness of your school's CTE program on education outcomes and employment opportunities for students participating in these programs?
9. What factors do you believe are essential to the implementation of your CTE programs?
10. What factors do you believe makes your CTE programs difficult to implement?
11. What areas, if any, do you believe your ISD could implement or modify to improve your CTE programs?
12. Have you noticed any changes in students following participation in CTE programming offered by your school?

APPENDIX C

Recruitment Letter Protocol

Hello _____,

I am pursuing my Doctor of Education in Learning and Organizational Change degree at Baylor University. As a part of my research, I am exploring the Career Technology Education (CTE) advisory committees' role in implementing and overseeing CTE programs offered by public independent school districts (ISD) located in Central Texas. Advisory committees are a vital resource used by CTE programs. These committees offer education programs an opportunity to engage with their surrounding community, and I am interested in understanding the influence these programs have on your CTE programs' success.

I am inviting you to participate in this research study titled "Career Exploration from Policy to Practice: A Qualitative Study on the Influence of Advisory Committees on Education Outcomes and Future Employment Outlook." You are being asked to participate in this study because of your knowledge and involvement in the development and implementation of CTE programs for your school district.

If you choose to be in the study, you will be asked to participate in a 45–60-minute interview (utilizing Zoom Video Communications online platform) to discuss the successes and challenges related to implementing your school district's CTE program. I have attached a consent form for your review and approval. If you approve, please respond to this email consenting to participate.

If you have questions about this request or concerns about participating in this study, please contact me at adele_williams1@baylor.edu.

Thank you in advance for your time and consideration.

Sincerely,

Adele Knight Williams
Doctoral Candidate
Baylor University

APPENDIX D

Informed Consent

Baylor University
Department of Curriculum & Instruction

Consent Form for Research

PROTOCOL TITLE: CTE Program Consent Form

PRINCIPAL INVESTIGATOR: Adele Williams, Doctoral Candidate, School of Education

SUPPORTED BY: Baylor University

Purpose of the research: The purpose of this study is to explore advisory committees' role in the implementation and ongoing oversight of Career and Technical Education (CTE) programs offered by public independent school districts (ISD) located in Central Texas. Many research studies support the urgent need for career exploration and report on the benefits of CTE programs (Neild et al., 2013; Dalporto, 2019; Bragg & Ruud, 2007; Plank, 2001; Stern et al., 1997; Bishop & Mane, 1999, 2004; Light, 1999). However, few studies have researched the influence of community and business partners serving on advisory committees have on CTE program implementation and compliance. We are asking you to take part in this study because of your knowledge and involvement in the development and implementation of CTE programs for your school district.

Study activities: If you choose to be in the study, you will you will be asked to participate in a 45-60 minute interview (utilizing Zoom Video Communications online platform) to discuss the successes and challenges related to the implementation of the CTE program.

Risks and Benefits:

To the best of our knowledge, there are no risks to you for taking part in this study.

You might benefit from being in this study because the results of this study will provide useful information regarding the implementation and ongoing oversight of CTE programs. This information could also inform the recruitment and training of CTE advisory committee members.

Confidentiality:

The researcher plans to protect your confidentiality. Records of this study will be kept confidential by ensuring all data is accessible only to the investigators of this study. All Zoom recorded interviews, any audio-recorded data collected will be encrypted, and any personal identifying information will be removed. If you choose to withdraw from this study, your data will be removed and destroyed from our database. We will make every effort to keep your records confidential. However, there are times when federal or state law requires the disclosure of your records.

The following people or groups may review your study records for purposes such as quality control or safety:

Representatives of Baylor University and the BU Institutional Review Board

The results of this study may also be used for teaching, publications, or presentations at professional meetings. If your individual results are discussed, your identity will be protected by using a code number or pseudonym rather than your name or other identifying information.

Audio, Video, Image Release

The results of this study may be published or presented at a scientific meeting. The researchers will ask for separate written permission to include your name, pictures, and/or recordings or other information that could identify you.

Internet-based research

Confidentiality will be maintained to the degree permitted by the technology used. Your participation in this online survey involves risks similar to a person's everyday use of the Internet, which could include illegal interception of the data by another party. If you are concerned about your data security, please contact the researcher to schedule a time to complete a printed survey with the same questions.

Compensation:

Participants will not be paid or will not receive other forms of compensation for participation.

Questions or concerns about this research study

You can call us with any concerns or questions about the research. Our telephone numbers are listed below:

If you have any questions about this research, you may contact:

Adele Williams

Phone: (254) 717-0587

Email: adele_williams1@baylor.edu

Or

Dr. Brooke Blevins, Faculty Advisor

Phone: (254) 710-4581

Email: brooke_blebins@baylor.edu

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), you may contact the Baylor University IRB through the Office of the Vice Provost for Research at 254-710-3708 or irb@baylor.edu.

Taking part in this study is your choice. You are free not to take part or to stop at any time for any reason. No matter what you decide, there will be no penalty or loss of benefit to which you are entitled. If you decide to withdraw from this study, the information that you have already provided will be kept confidential. Information already collected about you cannot be deleted.

By continuing with the research and completing the study activities, you are providing consent.

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