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Perceptions of the Skills Gap in Career and Technical Education in an Urban School District

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Walden University
2024

Abstract

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MA, University of North Texas, 2013

BS, University of Miami, 1993

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

February 2025

Abstract

A gap in career and technical education (CTE) skills can negatively influence outcomes for students who plan to enter the workforce or college following high school graduation. The purpose of this qualitative case study was to explore the perceptions of principals, counselors, teachers, and business leaders from different industries, about the skills gap among CTE students and their preparation for the workforce or college. Kathuria's organizational alignment theory grounded this study. For this case study design, semistructured interviews were conducted with nine participants purposively selected from each stakeholder group: principals, counselors, teachers, and business leaders from different industries. All participants worked with CTE programs for at least 5 years and were affiliated with the study site. Thematic analysis resulted in the identification of the following themes: (a) high school graduates from CTE programs are being underprepared to enter the workforce and (b) the skills gap encompassed hard skills and soft skills. Results of the study found that all stakeholders perceived high school students as being underprepared to enter the workforce and that it was attributed in large part due to a lack of soft skills. District and school leaders may use the results of this study to address gaps in CTE curricula and re-evaluate how stakeholders are aligned in their efforts. Future research could explore more stakeholders from diverse regions and from multiple business industries. This study contributes to positive social change by emphasizing the need for improvements in CTE programs, particularly the integration of soft skills curricula. These enhancements will help ensure students are career-ready, more skilled, adaptable, and part of a workforce that positively impacts society and the greater good.

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Dedication

I dedicated this doctoral journey to my grandmother, Mary Magdalene Clarke Grigsby, who was a life-long believer in education. She received her bachelor's degree in 1947 from North Carolina College for Negroes, and her master's degree in 1974 from Texas Christian University. If she succeeded when times were much harder, I certainly could too. Hard-work, determination and motivation were the values that she instilled in me, and they are still with me today. I also would like to acknowledge my husband, Mark, who encouraged me every step of the way. Mark pushed me on the hardest days when nothing seemed to make sense (statistics, lol) and cooked and cleaned the house. For that, I am truly grateful. He is my best friend, and I could not have done this without him. Finally, to my son, Kyle, who I am so proud of–I hope you will treasure your legacy and continue to soar high.

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I would like to thank Dr. Mary Kropiewnicki and Dr. James Bailey for providing me with the most authentic, genuine, and relevant feedback. It truly helped me grow as a professional and helped me throughout this doctoral journey. A special thank you also to my colleague, Jocelyn Starling, who informed me about the doctoral program at Walden University and who supported me through the hardest of times. They say people come into your life for a reason. I am so glad our paths crossed in this lifetime.

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Chapter 1: Introduction to the Study

In past years, there was a shift in ensuring that high school students not only graduated from high school, but also graduated with the necessary skills to be prepared for an in-demand, high-skill career at a living wage (Texas Education Agency, 2023). A living wage is defined as a fair and decent level of income that would enable a person to meet their basic needs, such as food, clothing, shelter, healthcare, and transportation (Shelburne, 1999). With the advancement of technology, the skills needed in today's workforce are vastly different from the skills needed decades ago. The need for skilled workers is in high demand, yet the supply of highly skilled workers is low (Holzer, 2015). In a U.S. Chamber of Commerce (2020) study, 74% of hiring managers agreed there is a skills gap in the current labor market. Increasingly, it is a case of supply and demand. Levesque (2019) defined the skills gap as a fundamental mismatch between the skills that employers rely on in their employees and the skills that job seekers possess. When employers were asked whether they preferred a credential, such as a degree, or skills, the answer was overwhelmingly skills (U.S. Chamber of Commerce, 2020).

According to the Texas Education Agency (TEA, 2023), career and technical education programs were intended to answer the call and ensure high school graduates were highly skilled to be productive in the workforce. The site of this study was secondary high schools in a large urban district in Texas where district leaders acknowledged that while there was a post-secondary plan for the district's top tier high school students through Advanced Placement, Early College High School, and International Baccalaureate programs, there was not a postsecondary plan and/or a career

plan for the district's struggling high school students (CTE Director, personal communication, November 4, 2019). The consensus among district leaders at the study site was that students enrolled in career and technical education programs were not prepared with the needed skills to attain employment that would result in a living wage after high school, which was reflective of the findings of (Hackmann et al., 2019). Subsequently, district leaders implemented several programs to boost students' options for postsecondary success.

Hackmann et al. (2019) focused on examining the way college and career readiness was emphasized in state accountability plans. Data from the study school district showed that career and technical education students were not graduating college and career ready based on state criteria. However, there was a gap in current knowledge about factors that contributed to the gap in skills. In a study conducted by McCloy et al. (2020), the authors suggested that the United States continued to struggle with a skills gap. Marshall and Craig (2019) defined a skills gap as a disconnect between the skills employers need and the amount of job seekers with those skills. Obtaining the perspectives of principals, counselors, teachers, and business leaders from different industries was the focus of the larger conversation to address the skills gap.

This study had several implications for positive social change. The results of this study aligned efforts among local stakeholders so that students could have the knowledge and skills needed to succeed in the workforce, which shows to improve quality of life (Adamuti-Trache et al., 2020). For example, the results of this exploratory qualitative case study provided information on how to ensure students have a post-secondary plan

that leads to livable wage employment, if college it was not their intended next step, and could result in positive social change within a community (Adamuti-Trache et al., 2020). It also increased awareness among business leaders from different industries to partner with school districts to offer employment to students upon graduation, which could ultimately impact the trajectory of their families and lives. All students, no matter their class rank and program of study, should have opportunities to be successful after high school by being prepared for a career or post-secondary education (Adamuti-Trache et al., 2020). Through the alignment of CTE course work with the acquisition of employable lifelong skills, the result is impactful.

Chapter 1 outlined the background, the problem statement, and the purpose of the study. It also contained the study's research questions, conceptual framework, nature of the study, and definitions. The chapter concluded with assumptions, scope and delimitations, limitations, significance, and the summary.

Background

College and career readiness (CCR) means that students graduate from high school prepared to enter and succeed in postsecondary opportunities—whether college or career—without need for remediation (U.S. Chamber of Commerce, 2020). According to the U.S. Department of Education (2023), to compete in a global society, students need more than just basic skills. Edgerton and Desimone (2019) recommended that implementing CCR standards and obtaining stakeholder buy-in should be considered. In a study conducted by DiBenedetto and Willis (2020), post-secondary students were asked to determine the importance of knowledge and skills as it related to career readiness. A

needs assessment model was used, and the results overwhelmingly found that students believed that career readiness was dependent upon skills commonly developed on their own, as most students in the study felt strongly that they were most responsible for developing their own skills.

In 2013, the Texas Legislature passed House Bill 5 which was intended to support college and career readiness. Students were required to select an endorsement with a focus on career and technical education programs. Thus, in Texas, CCR is considered a priority in K-12 education (Adamuti-Trache et al., 2020). Prior studies have also found that students involved in career and technical education programs graduated with positive outcomes, had higher assessment scores, and transitioned better to post-secondary education and/or the workforce (Adamuti-Trache et al., 2020).

However, a gap existed in technical and academic skills among career and technical education students that affected employability (U.S. Chamber of Commerce, 2020). The term skills gap developed over the last decade in response to mounting concerns that today's youth lack the 21st century knowledge, skills, and dispositions, as well as work ethic, needed for many middle wage careers (Fletcher & Tyson, 2017). According to Connet (2021), record unemployment was not only due to a lack of available jobs, but also a lack of skilled workers to fill the jobs that were available. Connet (2021) also suggested potential job seekers were often underqualified for jobs listed by employers. Career and technical education, along with workforce or military training programs might build capacity in students to enter college or the workforce upon

high school graduation. Connet (2021) explained that CTE programs blended core academic concepts and employability skills and produced a well-rounded learner.

Lawmakers have addressed the skills gap for decades. The Vocational Education Act of 1984, often referred to as the Carl D. Perkins Act, provided funding for vocational education and poor and handicapped children that evolved into CTE programs in 2006 (Fletcher & Tyson, 2017). Presidents and their administrations addressed the skills gap in federal education policies such as Every Student Succeeds Act (ESSA) enacted by President Lyndon Baines Johnson in 1965, the No Child Left Behind Act (NCLB) enacted in 2001 under President George W. Bush (U.S. Department of Education, 2023). In 2010, under President Barack Obama's administration, efforts were made to reform the No Child Left Behind Act (NCLB) and included a focus on college and career readiness (Obama White House Archives, 2023).

In Texas, there was a potential mismatch in alignment of CTE programs that could yield to high growth, high demand jobs (Valdez & Johnson, 2020). In addition to the mismatch in alignment, how long a student remained in one program of study was linked to their skill level and ultimately their earning potential in their field, which addressed the skills gap (Kreisman & Stange, 2019). The state of Texas now requires that principals, school leaders, and their teams be more intentional about implementing systems to ensure that when students select a program of study, they remain in the program until they are considered a completer (Valdez & Johnson, 2020). There was little research that explored how school leaders and the business community perceived this change to address or close the skills gap. Therefore, a gap in practice remained as it

pertained to the perceptions of stakeholders such as principals, counselors, teachers, and business leaders from different industries.

Problem Statement

The problem that was explored was the minimal understanding of the perceptions of principals, counselors, teachers, and business leaders from different industries about the skills gap in career and technical education students in a large urban school district in Texas. This study was conducted in a large urban school district in Texas and explored the perceptions of principals, counselors, teachers, and business leaders from different industries as they related to the skills gap. Levesque (2019) conducted a study and found that, to adequately address the skills gap, seen among high school graduates, employers needed to understand the skills gap and consider what they could do to partner with schools and other stakeholders to address the skills gap.

The study district developed an annual district improvement plan, which was posted on the district website. The plan provided detailed goals, strategies, performance objectives, problem statements, root causes, and metrics. In Texas, accountability plays a huge role in determining a schools rating. For high schools, career, college, and military readiness (CCMR) outcomes also play a major role in supporting accountability. A school's rating could increase if a significant number of students passed an industry-based certification, passed the Texas Success Initiative exam (TSI), earned college credits, scored a 3+ or 4+ on advanced placement or international baccalaureate exams, or joined the military. As a result, more high schools in Texas increased efforts to ensure students met one of these criteria. In the study district, data showed that the number of

high school students who earned industry-based certifications rose from 2019 to 2023. However, while it appeared the district was moving in the right direction, the data were misleading based on new state criteria (see Table 1).

Table 1

Industry-Based Certifications

Graduation Class	Graduates w/IBC	District Graduates	Percent w/IBC	Year to Year Growth
2019-2020	311	8,208	4%	N/A
2020-2021	948	8,815	11%	7%
2021-2022	2,538	8,667	29%	18%
2022-2023	3,874	8,742	44%	16%

Note. The data show the number of seniors who completed any industry-based certification regardless of their program of study.

Beginning with the 2023-2024 school year, the TEA implemented new criteria for districts to achieve accountability in CCMR. School districts had to ensure that students remained in their CTE program of study from 9th through 12th grade, earned three or more credits in four or more courses, and the industry-based certification was aligned to the program of study. Ultimately, the state felt as though earning any certification was not enough and that there was still much work to be done to ensure students were meeting the performance standards of being college and career ready. Many stakeholders weighed in on the decision to increase the criteria for CCMR, including employers and business leaders who continued to argue that they were not seeing skilled workers. Connet (2021) believed that employers were looking beyond a traditional credential such as a degree and looked more to industry-based certifications (IBCs) to demonstrate an applicant had the skills needed for the job. Prior to now, high school students in Texas were not required to be completers. Table 2 shows a progression of how students are coded if they participate

in the CTE program. Prior to the present time, there was not a requirement for students to finish high school as completers. Most students were explorers, trying out many different courses in multiple programs of study. The intended goal of moving students to the completer status was to increase job ready skills in a specific program of study, which addressed the call from industry and business leaders to have the needed technical and soft skills they were seeking in potential employees.

Table 2

Texas CTE Indicator Codes and Definitions

CTE Program	Code	Description
Non-Participant	4	A student who never enrolled or who did not complete any high school CTE course.
Participant	5	A student completing either one CTE course for any number of credits or more than one course for less than two credits.
Explorer	E	A student completing two or more high school CTE courses for a total of two or more credits.
Concentrator	6	A student completing and passing two or more CTE courses for a total of at least two credits within the same program of study but not a completer.
Completer	7	A student completing and passing three or more CTE courses for a total of four or more credits within a program of study, including one level three or level four course from within the same program of study.

Purpose of the Study

The purpose of this qualitative case study was to explore the perceptions of principals, counselors, teachers, and business leaders from different industries about the skills gap in career and technical education students in an urban school district in Texas. Connet (2021) stated, “by recognizing the importance of collaboration between employers and education, by functions of CTE and workforce development, there is strong potential for a more sustained response to the national skills gap issue” (p. 72).

Recent data from the local site confirmed a need to continue the conversation regarding the skills gap. The data confirmed that a significant number of high school graduates were not graduating with the necessary credentials to be considered career ready, despite there being CTE programs on all high school campuses. The intent of the study was to gather perceptions and input from multiple stakeholders as to where they saw gaps and how those gaps could be addressed. It was important to understand how the group of stakeholders defined and perceived the skills gap to determine how the skills gap could be addressed. Gaining a better understanding of the skills gap could lead to district leaders further supporting and emphasizing the need for ensuring students leave high school gaining a completer status and be college and career ready. The findings of this study could also lead to better college and career professional development for school leaders and staff to inform how the district could improve overall goals.

Research Questions

The research questions that guided this qualitative case study were as follows:

RQ1. What were the perceptions of high school principals, counselors, teachers, and business leaders from different industries related to the skills gap among career and technical education students?

RQ2. How did principals, counselors, teachers, and business leaders from different industries perceive career and technical education students' preparation with the skills needed for career readiness or college?

Conceptual Framework

The conceptual framework for this study was the organizational alignment theory by (Kathuria et al., 2007). According to Kathuria et al. (2007), organizational alignment required a shared understanding of organizational goals and objectives by stakeholders at various levels and within various units of an organizational hierarchy. The organizational alignment theory was based on the premise that the productivity of organizations would be more effective if the organization's stakeholders had a shared and aligned vision of success. Kathuria et al. (2007) outlined two types of alignment: vertical and horizontal. Vertical alignment refers to the configuration of strategies, objectives, action plans, and decisions throughout the various levels of an organization, while horizontal alignment refers to the coordination of efforts across the organization and is primarily relevant to the lower levels in the organizational hierarchy (Kathuria et al., 2007). Powell et al. (2004) explained that alignment could assist organizations in three ways: (a) by maximizing return on the investment, (b) by helping to achieve competitive advantage, and (c) by providing direction and flexibility to react to new opportunities.

In this study, organizational alignment as a conceptual framework was aligned with the problem and the purpose of this study as perceptions of the skills gap was explored with four groups of stakeholders: principals, counselors, teachers, and business leaders from different industries. These four groups were selected as vital stakeholders who, together, provided a comprehensive perspective that supports vertical alignment. A premise of organizational alignment theory specific to this study is the alignment of the school curriculum with the needs of the community. It was important to explore if the

various stakeholders perceived that the skills being taught were aligned with those needed for employment or entry into post-secondary education. Participants from the four groups of stakeholders were interviewed regarding their perceptions of the central phenomenon of college and career readiness. Organizational alignment allowed me to explore if and how alignment could benefit student outcomes and helped to address the skills gap in the study district. Chapter 2 provides a more thorough explanation of the organizational alignment theory and how it aligns to the study.

Nature of the Study

A qualitative case study design was used to address the purpose of the study and to answer the research questions. Ravitch and Carl (2021) said that qualitative studies allow the researcher to study the everyday lives of many kinds of people, and what they think about under different circumstances. Case study research methods involve studying a case in significant depth and in its real-world context using a variety of data sources, including direct observations, interviews, focus groups, documents, artifacts, and other sources (Burkholder et al., 2020). Yin (2010) defined case study research as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clear and in which multiple sources of evidence are used.

For this qualitative case study, two data collection strategies were employed, semistructured interviews that were aligned to the research questions and district and campus improvement plans. Semistructured interviews facilitated the collection of qualitative data from participants with firsthand experience related to the study's

problem. The analysis of the district and campus improvement plans was conducted to triangulate data collected from semistructured interviews. Burkholder et al. (2020) acknowledged that the collection of data from different sources helps to ensure the trustworthiness of a qualitative study. Rubin and Rubin (2012) described the qualitative process of data collection and analysis as a process that takes the researcher step by step from the raw data in the interviews to clear answers to the research questions. Participants were both internal and external stakeholders from the large urban district in Texas that served as the study site. Semistructured interviews of nine participants were selected using purposive sampling that included three principals, two counselors, two teachers, all identified as the internal stakeholders, and two business leaders from different industries, identified as the external stakeholders. Semistructured interviews allowed me to ask questions with probing questions, as needed, after listening to the participants' responses.

To analyze the data after the interviews were transcribed, I used thematic analysis (see Braun & Clarke, 2006; Nowell et al., 2017) and inductive coding as described by Saldaña (2021) to assign an attribute for a word or a short phrase for a portion of the data. Obtaining the perspectives of principals, counselors, teachers, and business leaders from different industries enabled data source triangulation to occur in the analysis process (see Saldaña, 2021). Coding enabled me to analyze the interview transcripts and documents, then determine the categories that led to the themes of the study following the thematic analysis process (see Braun & Clarke, 2006; Nowell et al., 2017).

For my research design, I used one-on-one, semistructured interviews of eight to 12 participants, and document analysis of district and campus improvement plans. Yin (2010) outlined a protocol when conducting case study research and suggested that it include an overview of the case study, field procedures, case study questions, and a guide for the case study report.

I serve as the director of a CTE center in the study school district. The CTE center, where I serve as director, was excluded from the study to ensure there was no conflict of interest. Participants were purposively selected from the study schools and the communities those schools serve and over whom I had no supervisory or evaluative capacity. Any preexisting relationships with potential participants was of a professional nature.

Definitions

This section outlines a definition of terms that are used throughout this dissertation study and are defined to provide context to the reader.

Career and Technical Education (CTE): CTE stands for career and technical education. Career and technical education programs offer students courses that are aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in current or emerging professions (TEA, 2023).

Credential: A credential refers to the essential qualifications that have been achieved in the completion of a degree, certificate, or specific work context (Barkhodaee, 2013).

Essential workers: Essential infrastructure workers are those who protect their communities, while ensuring continuity of functions critical to public health and safety, as well as economic and national security (Blau et al., 2021).

Frontline workers: Frontline workers include (but are not limited to) health care workers, protective service workers (police and EMS), cashiers in grocery and general merchandise stores, production and food processing workers, janitors and maintenance workers, agricultural workers, and truck drivers (Blau et al., 2021).

Industry-based certifications: Industry-based certifications are identified by the TEA as a set of criteria that prepare high school students for success in the workforce, college, or the military (TEA, 2023).

Living wage: A theoretical income level that allows individuals or families to afford adequate shelter, food, and other necessities (Kagan, 2022).

Skills: Skills are defined in two categories. Hard skills are the knowledge needed to perform a task (Downing, 2013). Soft skills are non-technical attributes associated with one's personality, attitude, and ability to interact effectively with others or to be optimally employable (Rainie & Anderson, 2017).

Skills gap: The term skills gap describes a fundamental mismatch between the skills that employers rely upon in their employees, and the skills that job seekers possess (Levesque, 2019).

Assumptions

In this qualitative case study, I assumed that all stakeholders provided honest perceptions and genuine feedback. Participation in the study was voluntary without

coercion, and participants could withdraw at any time from the study without any consequence; this led to the assumption that responses were genuine and authentic. Those who volunteered had to meet the inclusion criteria for participation; therefore, it was assumed that participants provided meaningful data to address the research questions.

Scope and Delimitations

This qualitative study focused on the intended study site and the participants in a large urban school district in Texas. The data were delimited to graduating seniors and their industry-based certification attainment. Although data from the last 3 years showed growth, the need to continue studying the skills gap persisted. Participants were delimited to specific categories of stakeholders, including principals, counselors, teachers, and business leaders from different industries who were invited to provide input regarding their perceptions of the skills gap and to address the research questions in this study. The purpose of this study was to explore the perceptions of principals, counselors, teachers, and business leaders from different industries about the skills gap in career and technical education students. The delimitations in this study enabled a focus on CTE programming and graduating high school seniors and their industry-based certification attainment in the study district.

Limitations

Qualitative research has inherent limitations in terms of participants and site that can limit transferability. To mitigate this limitation, thick description was used to report the findings of the study (see Burkholder et al., 2020). The results could be transferable to other study sites in the state of Texas with career and technical education programs. The

limitations and barriers that needed to be addressed while conducting this study were access to participants and scheduling conflicts. To address this limitation, I scheduled interviews at the convenience of the participants and sought access to documents that were publicly available. Bias was another potential challenge that could have arisen in the data collection and analysis process. To navigate any bias due to my experience as a director of a CTE center, I used reflexive journaling throughout the data collection and analysis process. Burkholder et al. (2020) defined reflexive journaling as an ongoing narrative of the researcher's rationale for the study, assumptions, values, and relationships to the participants in terms of culture and power. The use of reflexive journaling helped to monitor and mitigate bias and ensured that transparency was practiced.

Significance

High school students who graduate with the knowledge and skills needed to succeed and who have a post-secondary plan is important to ensuring sustainability of a productive workforce and global economy. This study was significant in that the perceptions of principals, counselors, teachers, and business leaders from different industries and their understanding of the skills gap was critical in determining how to close the existing skills gap. While research was previously conducted in this field of study, there remained a gap in knowledge about the perceptions of stakeholders such as principals, counselors, teachers, and business leaders from different industries concerning the skills gap of CTE students. Through this exploration, school leaders could have a

wider view of the issue and a better understanding of how to address the skills gap that leads to the alignment of school programming with community needs.

Walden University (2023) has a social justice mission as one where graduates advance the "greater global good." If there were opportunities to provide programs to CTE students that taught the necessary skills to attain a job resulting in a living wage, there could be a greater possibility of breaking the poverty cycle, and the "greater global good" could be realized (Walden, 2023). This study supports the idea that the more opportunities that are afforded to students to leave high school with job ready skills, the better they can contribute to their families and community resulting in social change. This research could also affect social change because the intended audience is policymakers and leaders at the local level who can implement change.

Summary

As the focus on the skills gap is becoming more apparent, the participation in CTE programs is growing across the country (Connet, 2021). This study sought to determine the perceptions of principals, counselors, teachers, and business leaders from different industries regarding the skills gap among career and technical education students. This first chapter provided the reader with an understanding of the problem of a growing concern for the skills gap, and the purpose, which was to explore perceptions of the various stakeholders in this study. By gaining the perspectives of various stakeholders, this study contributed to the research on how similar districts can address the skills gap. Data were gathered using one-on-one, semistructured interviews. Organizational alignment theory was the conceptual framework utilized to address the

research questions and guide the data analysis. In Chapter 2, the reader is provided with an extensive review of the literature related to the problem.

Chapter 2: Literature Review

The idea of the skills gap in America is not a new topic. In educational and business circles, the skills gap is a widely popular topic. The general understanding of the skills gap is that there is an abundance of jobs available, but not enough skilled workers to fill them (Hancock et al., 2020). Bettencourt et al. (2022) claimed that high schools in the United States focused more on college academic curriculum rather than vocational, hands-on training. However, critics of the skills gap claimed that businesses and the government shifted the blame to schools, rather than taking responsibility for inadequate onboarding and training of new and early professionals (Hora, 2016). The fact is there are many jobs unfilled annually (Craig, 2019). Understanding why that is happening is an issue that educators are trying to address. One study suggested that employers said they had trouble finding qualified workers to fill existing roles (Craig, 2019).

Although technological advancements have advanced businesses in many ways, they also presented challenges for employers and employees (Li, 2022). Li (2022) posited that by 2025, 50% of all employees will need to be retrained or reskilled to meet the needs for more complex skills due to emerging technology. Hancock et al. (2020) asserted that employers must use innovative strategies to develop skills in future employees and meet the demands of advancing fields. Otherwise, employers might continue to witness a skills mismatch (Brunello & Wruuck, 2021). Being underqualified and having insufficient skills could also have a negative effect on workers as automation in many business sectors increases (Schwabe & Castellacci, 2020). As the need for soft skills and hard skills remain, Lyu and Liu (2021) found that in some business sectors, one

could be more beneficial than the other. For example, Lyu and Liu (2021) found that in the energy sector, hard skills such as product marketing and general computer skills were more important to the overall success of the company than soft skills. While Lyu and Liu (2021) made the argument for hard skills, researchers like Fajaryati et al. (2020) stated employability skills such as communication and teamwork were most important, and that education sectors should implement curriculum in all classrooms to meet the demands of the workforce. These skills are also known as social and emotional learning (SEL) skills, and they represent a set of competencies that employees have begun to prioritize alongside technical skills (Toder et al., 2020).

That is the core of this research study, which explored the minimal understanding of the perceptions of principals, teachers, counselors, and business leaders from different industries concerning the skills gap. Beginning with details about the literature search strategy and the conceptual framework, this chapter outlines existing research regarding the skills gap and perceptions of key stakeholders. It also examines key concepts related to the literature review and concludes with a summary.

Literature Search Strategy

In qualitative research, a review of the literature helps the researcher make sense of what they are learning and allows the researcher to develop research findings that address the research questions (Ravitch & Carl, 2021). An exhaustive review of the literature was accomplished primarily using the Walden University library website, which included ProQuest, EBSCO, and ERIC. Google Scholar was another search method utilized to find additional resources to support the research. I used Google

Scholar and Walden's library databases to conduct a review of recent literature related to the study. A search for seminal research was conducted to identify any prior research regarding the skills gap. A list of key terms was also developed to use for searches and the parameters for the searches were set for peer-reviewed and within the last 5 years. Searches were conducted using the terms *career and technical education, perceptions of the skills gap, high school career preparation programs, principal and counselor perceptions of the skills gap, business leader partnerships and high school career programs, soft skills, employability skills,* and *addressing the skills gap*. A review of the literature determined that many in the education and business sectors believed that there were concerns regarding the skills gap and that addressing those concerns would advance knowledge. From the literature review, evidence was provided to develop the conceptual framework (Burkholder et al., 2020). Burkholder et al. (2020) said there are three sources for creating the conceptual framework: (1) experience, (2) literature, and (3) theory. Primary research terms that yielded results in developing the conceptual framework were *organizational alignment, strategic alignment in education, skills gap theory, addressing the skills gap, employability skills*, and *high school career and technical programs*. The literature search, which yielded books, journals, and articles, supported the development of the problem and purpose of the study.

Conceptual Framework

The general understanding of the skills gap is an abundance of unfilled jobs, and although there are a multitude of potential workers, there is a mismatch between the skills and the training that employers are looking for and the skills that potential job seekers

possess (Connet, 2021). This theme of a mismatch in skills led to choosing the conceptual framework for this study, Kathuria et al.'s (2007) organizational alignment theory. The organizational alignment theory was based on the premise that alignment requires a shared understanding of organizational goals and objectives by stakeholders at various levels and within various units of the organizational hierarchy (Kathuria et al., 2007). Kathuria et al. outlined two types of alignment: vertical and horizontal. Vertical alignment refers to the configuration of strategies, objectives, action plans, and decisions throughout the various levels of an organization, while horizontal alignment refers to the coordination of efforts across the organization and is primarily relevant to the lower levels in the organizational hierarchy (Kathuria et al., 2007).

To close the skills gap, Connet (2021) stated that workforce development and CTE programs typically operate independently of one another, which presents a missed opportunity for business leaders and educators to collaborate on the necessary skills needed to succeed in today's workforce (Hendricks et al., 2021). In the educational realm, educators, including the superintendent, district leadership, principals, counselors, and teachers all have input regarding the type of career programs offered to high school students. Additionally, business leaders often support school districts and their career and technical education programs by providing internships, mentorships, and exposure to industry opportunities. These partnerships between high schools and industry benefit students; however, there were still concerns that the skills students were being taught were not enough to compete in a global society (Fletcher & Tyson, 2017). In other words, there was a misalignment of goals with a misalignment of curriculum. Powell et al.

(2004) explained that alignment could assist organizations in three ways: (a) by maximizing return on the investment, (b) by helping to achieve competitive advantage, and (c) by providing direction and flexibility to react to new opportunities. In this instance, aligning what students are taught to the specific needs of business leaders and employers could yield favorable results (Bettencourt et al., 2022).

The organizational alignment theory explains how organizations can examine their organizational problems and provides a framework to address change. The intent of this study was to explore perceptions of stakeholders and offer a rationale as to how organizational alignment could facilitate needed change to address the skills gap. The term "skills gap" developed over the last decade in response to mounting concerns that today's youth lacked the twenty-first-century knowledge, skills, and work ethic needed for many high-demand, high-wage jobs (Fletcher & Tyson, 2017). The research and data gathered from this study could equip high schools and business leaders with the tools to address alignment more effectively as it relates to the skills gap.

In a study by Kathuria et al. (2007), infrastructure was reviewed as it related to the strategies, goals, and objectives of an organization at the corporate level to ensure they were being met. Kathuria et al. (2007) identified three types of alignments that impact organizational performance: (a) strategic alignment, (b) structural alignment, and (c) cultural alignment. Strategic alignment involves joining what the organization considers as priorities with the strategies based on its internal structures, processes, and cultures to achieve objectives. Strategic alignment's foundation came from the work of (Henderson & Venkatraman, 1993). Henderson and Venkatraman defined strategic

alignment as the degree of fit and integration among business strategy, information technology (IT) strategy, business infrastructure, and IT infrastructure.

Tallon and Pinsonneault (2011) examined the strategic alignment of IT and business strategies. The model these theorists developed explained the relationship between strategic information technology and an organization's agility. Tallon and Pinsonneault took an in-depth look and detailed how a company's strategies met with its business needs and priorities as the organization delivered a higher level of agility. According to Tallon and Pinsonneault (2011), greater agility produces more continuity across departments and functions and allows companies to be more flexible and adaptable to change in the business environment.

Kathuria et al. (2007) considered the view of Chan et al. (2006), who also believed in strategic IT business alignment. The views of Chan et al. (2006) aligned with Kathuria et al. (2007); IT systems should support business goals and strategies. Chan et al. (2006) purported that companies should strive to connect IT and business over a period of time rather than maintain a static fit. Chan et al. (2006) called this process dynamic capability because it was everchanging and referred to the ways the connection worked through the skills of an organization's people and processes. Chan et al. (2006) posed three questions, which guided good business alignment: "Strategic—Do IT strategy and business strategy match up? Structural—Does the IT department role/structure fit the business structure? Social—Do IT and business executives understand each other?" (pp. 29-31).

Kathuria et al. (2007) built on the foundational work of several researchers including Henderson and Venkatraman (1993), Tallon and Pinsonneault (2011), and Chan et al. (2006). The work of Kathuria et al. (2007) correlated IT strategy to business goals, synchronized structures/processes, and supported flexibility in work environments, which are part of important skills. In other words, workers must be ready for real-world experiences by possessing and using technical and people skills. The organizational theory aligns with the education and business sectors in that high school students should be prepared for the world of work with an abundance of technical skills and soft skills to narrow the skills gap.

Literature Review Related to Key Concepts

The History of CTE in Secondary Education

The history of career and technical education in America is vast and dates to the 19th century (Gordon & Schultz, 2020). Schools during that time were categorized as one of three types: (1) schools that offered only trades, (2) schools that offered a combination of trade and general education, and (3) schools that offered apprenticeships, trade training and general education (Gordon & Schultz, 2020). Historically, vocational education in America was also influenced by European educational reformers such as Jean-Jacques Rousseau and Johann Heinrich Pestalozzi (Gordon & Schultz, 2020). Pestalozzi believed that children should not just learn how to think but should also learn how to perform manual labor (Gordon & Schultz, 2020). Pestalozzi's views on the importance of vocational education spread across Europe and into the United States (Gordon & Schultz, 2020).

A focus on vocational education dates back to Thomas Jefferson, who is said to have reconceptualized the public education system and expanded its reach to many new citizens (Govain & McGeever, 2022). During that time, one of the oldest known types of vocational education in the United States was apprenticeships, which allowed students to obtain occupational competence (Gordon & Schultz, 2020). The apprenticeship process involved a formal agreement covering a definite period when the employer was to provide training in return for work (Gordon & Schultz, 2020). During the 19th century, there were two types of apprenticeships: voluntary and involuntary, many of which began by age 8 or 9 (Gordon & Schultz, 2020). Voluntary apprenticeships were not subject to provisions of law; however, involuntary apprenticeships involved signing a contract or indenture with a master and became public documents (Gordon & Schultz, 2020). After the time was complete for the apprenticeship, only the master could approve the completion and did so publicly (Gordon & Schultz, 2020).

A decline in apprenticeships occurred after the Industrial Revolution in the early 1800s with an increase in the need for machine operators, many of whom did not need a long period of training (Gordon & Schultz, 2020). With this decline, one of the most important characteristics of the apprenticeship program was lost--the personal guidance and instruction by a master (Gordon & Schultz, 2020).

Apprentices today are typically high school graduates in the construction and manufacturing trades, but many also work in the electronics field, service industry, public administration, medicine, and health care (Gordon & Schultz, 2020). Noworol (2020) found that not only does the United States focus on the traditional apprenticeship, but

there is also a strong consideration of adopting the European model of apprenticeships regarding white-collar professions.

Federal interest in career and technical education came in the early 1900's with the inception of the Smith-Hughes National Vocational Education Act of 1917 (Fletcher & Tyson, 2017). Since then, in response to changing social and economic conditions, CTE policy has continued to evolve (Imperatore, 2017). Smith-Hughes National Vocational Education Act of 1917 earmarked federal dollars to secondary vocational programs such as agriculture and trade and industrial education (Martin & Kitchel, 2020). The Smith-Hughes National Vocational Education Act of 1917 also set a precedence for career and technical education as it is known at the present time (Hile & Hunsaker, 2020).

With a focus on agriculture, the Smith-Hughes National Vocational Education Act of 1917 allowed teachers to take their experience and combine classroom and laboratory instruction, experiential learning, and leadership (Fristoe, 2017). By 1926, the American Vocational Association was formed, followed by the George-Deen Act of 1936, which appropriated $14 million federal dollars to teacher education and training for marketing occupations (Imperatore, 2017). Traditional instruction combined with non-traditional instruction beyond the classroom with teachers serving as mentors to their students (Fristoe, 2017). The beyond the classroom model can be seen in CTE programs today, as teachers have a unique opportunity to get to know their students on a personal level (Fristoe, 2017).

In 1984, Carl D. Perkins funded a large amount of money for vocational education and poor and handicapped children. The Carl D. Perkins Career and Technical Education Act, also known as Perkins IV, was the major legislative initiative that supported CTE programs across the United States (Kim et al., 2021). Its purpose was to provide students with college and career readiness skills needed to pursue further education and for successful employment in high demand and high wage jobs (Fletcher & Tyson, 2017). The most recent update, Perkins V in July 2018, refocused states' attention on CTE programming offered at the secondary and postsecondary levels (Dougherty et al., 2020). Although it retained many key provisions of Perkins IV, Perkins V required school districts to develop and submit a 5-year state plan in 2020 that detailed their approach to the new CCMR measures to qualify for federal funding (Dougherty et al., 2020). In 2013, the Texas Legislature passed House Bill 5, The Foundation High School Program, to support college and career readiness (Adamuti-Trache et al., 2020). Early influencers on vocational education throughout its history appear in Table 3.

Table 3

Early Influence on Vocational Education

Early Influencers	Booker T. Washington	W.E.B. Du Bois	David Snedden	Charles Prosser
Role	Educator	Sociologist	Educator	Lawyer
Philosophy	Promoted general education and manual labor	Promoted higher education	Promoted occupational experience	Promoted practice and theory will lead to mastery

Note. Source: Gordon, H., & Schultz, D. (2020). *The history and growth of career and technical education in America*. Waveland Press.

Expectations of Industry

As technologies, such as artificial intelligence and automation, continue to emerge, the nature of work is rapidly changing (Levesque, 2019). As work continues to change, so do the skills that employers need, value, and rely upon (Levesque, 2019). In a study conducted with employers from four different manufacturers, employers reported that one of the challenges in addressing the skills gap was first identifying the skills needed, and second, developing avenues to recruit, train, and retain employees (Levesque, 2019). Levesque also found that many middle market companies were not equipped to recruit, hire, train, and retain a skilled workforce, in part due to lean human resources departments. Connet (2021) addressed this challenge by highlighting a way to narrow the skills gap by ensuring all Americans have access to the educational pathways that CTE and workforce development programs offer. Connet also noted that with the continued sophistication of the workplace, employers were looking at other forms of credentials and certificates to demonstrate an individual had the skills needed. Burns (2020) asserted that the workplace of the 21st century requires better educated and better skilled people, capable of meeting the needs of emerging developments.

One common theme among employer expectations was soft skills or employability skills (McGunagle & Zizka, 2020). Soft skills are non-technical attributes associated with one's personality, attitude, and ability to interact effectively with others or to be optimally employable (Rainie & Anderson, 2017). When evaluating the significance of soft skills versus hard skills, a study by Qizi (2020) found soft skills ranked at 80% in terms of career achievement with hard skills ranked at 20%.

In a study measuring soft skills among students and employees, Aryani et al. (2021) found that soft skills positively influenced employees' self-efficacy and job satisfaction. Gauthier (2020) found that for employers, credentials and employability skills were beneficial to both the prospective employee and the employer. Similarly, Haviland and Robbins (2021) studied changes in middle skilled jobs and found that skills and employment were inherently linked and that, while employers required employees to know the technical skills necessary to do the job, a lack of soft skills was what most often resulted in employees being fired. Detgen et al. (2021) found that increasing soft skills such as team building, time management, organization skills, interpersonal skills, and communication skills benefited students in their education and career paths. Rios et al. (2020) conducted a study to examine qualifications employers were asking for in their job advertisements and found soft skills in highest demand from employers were oral and written communication, collaboration, and problem-solving skills.

A study conducted by Fletcher and Tyson (2017) found that local employers also experienced a gap in technical skills among high school students and employers wanted to find a way to bridge the gap between high school programs and the needs of employers. Fletcher and Tyson (2017) found that young adults lacked the full range of skills to be competitive for jobs that often remained unfilled and found employers advocated for high school programs that prepared students for not just college, but careers, particularly in science, technology, engineering, and math (STEM), and technician jobs where a college degree was not required, as noted by Black et al. (2021). According to employers in Fletcher and Tyson's study, they felt a strong need for high

schools to collaborate closely with industry partners to find out specifically what employers were looking for in an employee and to collaborate on the type of equipment students were being trained on to see if the training matched industry standards.

Baird and Parayitam (2019) surveyed employers regarding what they looked for in graduates and the skills they deemed to be most important. The survey consisted of 21 skills employers rated as most important that were categorized into four areas: (a) analytical skills; (b) career professional and readiness skills; (c) communication skills; and (d) personality, leadership, and team/group work skills. Baird and Parayitam found that employers rated interpersonal skills/work well with others, critical thinking/problem-solving skills, and listening skills the highest.

Deep et al. (2020) found project-based learning (PBL) as an instructional approach that had a significant role in the development of soft skills high school students needed to be prepared for the workforce. Similarly, England et al., (2020) found that collaborative learning was instrumental when teaching soft skills to high school students so that they could apply those collaborative teamwork skills in the workforce.

As the skills that employers value continue to change, and as employers continue to experience challenges to hire appropriately trained workers, the need exists to review the skills gap and its impact (Levesque, 2019). The position that reskilling was needed by Li (2022) was like that of Rotatori et al. (2020). Li and Rotatori et al. recommended that because of emerging technologies, retraining was needed and that all vested parties should be involved in both the education and business sectors.

Impact of COVID-19

COVID-19 had a significant impact on the labor market, as found by Vankudre and O'Kane (2020). Vankudre and O'Kane closely examined career and technical education career clusters and found that most workers associated with CTE career clusters were considered essential or frontline workers; thus, they were able to keep working during COVID-19. Similarly, Akkermans et al. (2020) conducted a study regarding the career shock that occurred during COVID-19. Akkermans et al. concluded that the pandemic further highlighted the need for workers in careers that resulted from training in CTE programs (Akkermans et al., 2020). Similarly, Blau et al. (2021) studied the composition of essential and frontline workers and determined that many of those professions resulted from training in career clusters such as health care, construction, education, and transportation. Agrawal et al. (2020) also studied the post-pandemic impact and its pitfalls and determined that leaders should start reskilling and upskilling their workforce now to keep up with emerging technology and potential future crisis.

Expectations of CTE in Secondary Education

While colleges may have been an intended goal for high school students, there were those who argued that the focus should not be college alone—and that more of a focus should be placed on career readiness (Turley, 2020). In a study conducted by Anderson and Nieves (2020), preparation for college and/or career were studied closely, and work-based learning was found to be critical to the student experience. Emphasis on college and career readiness was also found in middle schools who were implementing career intervention courses for middle school students (Babarovic et al., 2020).

Tucker and Hughes (2020) found that there were negative perceptions of career and technical education among core high school teachers such as those in academic content areas and among the public. Tucker and Hughes found that the perception of core teachers was that CTE was for students who were not college bound or for unmotivated students. In a study conducted by Hodge et al. (2020), equity in CTE was the focus. It was found that too often, schools disaggregated students to CTE courses who may not have been identified as a good candidate to attend college (Hodge et al., 2020).

Post-Secondary Education and Career Skills Gap

Throughout the decades, the focus and impetus for graduating high school students was college, veering from the concept of becoming a skilled worker or a student who might want to enter the trades (Schak, 2017). According to the U.S. Department of Education (2022), to compete in a global society, students needed more than just basic skills; many students needed remedial courses upon entering college as evidenced by college completion rates not keeping pace with growing workforce needs. Educators, legislators, and business and community leaders urged high quality standards and high academic standards so that students obtained higher order thinking skills and problem-solving skills to be successful in a global society (Kennedy & Sundberg, 2020).

Hodes and Kelley (2017) reported that although CTE is critical to U.S. global competitiveness, the United States was displaced as the global leader in educational attainment. As a result, Texas educators were looking more and more at the value of credentials, such as industry-based certifications (Giani, 2022). In Texas, there are 14 career clusters (see Appendix A). An example of an industry-based certification that a

student might earn in a construction pathway is OSHA 30. Another example includes the patient care technician certification, which a student might earn in the health science pathway. Many stakeholders including business leaders, state education lawmakers, and local education leaders provided input and determined which certifications were considered industry-recognized credentials.

Impact on the Economy and Communities

As the economy in the United States shifted from an agriculturally based economy to an information technology-based economy, much of the shift could be attributed to the skills gap (Talbert et al., 2022). Zilberman and Ice (2021) found that STEM-related occupations outpaced other occupations in growth. Michaels and Liu (2020) asserted that CTE programs in high schools could ensure that graduates were prepared to thrive in the 21st century workplace and those who graduated with an endorsement from their school's program should be well-prepared to enter the new and demanding jobs in STEM. Among those skills needed in the 21st century workplace, students should know how to apply their knowledge to solve real-world problems (Daggett, 2005). Daggett (2005) asserted that if career and technical education and the arts focused on academics in their coursework, it could have a profound effect on students' academic skills and for the 21st century workforce.

Page et al. (2020) conducted a study about the effectiveness of apprenticeship programs and found that these programs were useful in filling skills gap not currently met by secondary CTE programs. Page et al. (2020) described the impact of the skills gap on the economy as one where employers hired people who ultimately were not able to

contribute on the job, which had a detrimental effect on the organization. Specifically, lack of productivity, performance, return on investment, as well as turnover, unrealistic job expectations and low morale, all led to a negative financial impact for the company (Page et al., 2020).

Summary

As the concern regarding the skills gap existed in the education and business sectors alike, the question remained how to address it to close the skills gap (Connet, 2021). Chapter 2 provided insight and focused on research related to the organizational alignment theory by Kathuria et al. (2007) and how it connected to the purpose and problem in this study. Chapter 2 provided a review of the research that has been conducted in this field of study to provide an understanding of where the gaps in practice exist, and where future research could be conducted. Prior researchers found that the skills gap concerns are ongoing. Evidence emerged that soft skill development such as problem-solving skills and communication skills were needed to close the skills gap (Gee et al., 2020). Connet (2021) emphasized the importance of every student having access to CTE and workforce development programs and the need for alignment of the curriculum with workforce needs. Chapter 3 details the research design and rationale, the role of the researcher, the methodology, the participant selection, the instrumentation, the procedures for recruitment, the data analysis plan, and ethical procedures.

Chapter 3: Research Method

The purpose of this qualitative case study was to explore the perceptions of principals, counselors, teachers, and business leaders from different industries concerning the skills gap in career and technical education, and how they perceive change could be made. Chapter 3 contains a description of the research design and rationale, my role as the researcher, and the methodology. It also includes the participant selection, instrumentation, procedures for recruitment and participation, data collection, and the data analysis plan. This is followed with the trustworthiness strategies and ethical procedures and concludes with a summary.

Research Design and Rationale

Qualitative researchers study participants in their natural settings, to make sense of or interpret phenomena in terms of the meanings people bring to them (Denzin & Lincoln, 2018). In essence, qualitative researchers are interested in constructing meaning from others' perspectives and the ways people make sense of their world and the experiences they have in the world (Merriam & Tisdell, 2016). The primary purpose of qualitative research is to describe phenomena that occur in the world (Burkholder et al., 2020). Qualitative research also tends to be exploratory with the purpose of gaining understanding of complex phenomena through observation and description (Burkholder et al., 2020). Researchers use a set structure in qualitative research to establish rigor and various terms are utilized to designate the structure of qualitative research such as genre, approach, strategy, tradition, and design (Burkholder et al., 2020). For this study, a

qualitative research design was aligned with the purpose and the research questions that were developed. The research questions used in this study were as follows:

RQ1: What were the perceptions of high school principals, counselors, teachers, and business leaders from different industries related to the skills gap among Career and Technology Education (CTE) students?

RQ2: How did principals, counselors, teachers, and business leaders from different industries perceive CTE students' preparation with the skills needed for career readiness or college?

Burkholder et al. (2020) defined qualitative research as a situated activity that locates the researcher in the world and consists of a set of interpretive, material practices that make the world visible. Qualitative research is recursive meaning that it builds and depends on all its component parts (Ravitch & Carl, 2021). Qualitative research is both descriptive and analytic, with researchers involved in fieldwork and naturalistic engagement, seeking complexity and contextualization, showing fidelity to participants, and paying careful attention to processes and relationships (Ravitch & Carl, 2021).

As a novice scholar and practitioner, my worldview was more closely aligned with the explanation and interpretation of experience rather than prediction, which also aligned with the chosen research methodology. The research questions were formed based on the literature and the conceptual framework that supported this study in the career and technical education field. Qualitative methodology enabled me to have direct contact with participants and listen to their experiences and meanings to gain the perspectives of different stakeholders based on their individual experiences. The study

was designed to gain a better understanding of how the skills gap was perceived by high school stakeholders, and how potential change could be made to student preparation in CTE programming.

Unlike qualitative research, quantitative research is focused on testing theory or a hypothesis using experimental designs such as randomized controlled trials, numerical data, and statistical analysis (Burkholder et al., 2020). Quantitative approaches are primarily deductive, while qualitative ones are inductive (Burkholder et al., 2020). In quantitative research, the researcher attempts to understand and describe a phenomenon, behavior, or issue using numerical data and statistical analysis (Burkholder et al., 2020). While quantitative approaches are primarily used to test theory, I did not find this approach to be best suited for this study. Quantitative data has limitations. People's stories are important, and their personal experiences cannot be captured looking at numbers through a quantitative approach. The approach best suited for this study was qualitative research to focus on a deep explanation of a phenomenon, the skills gap. A quantitative design would not have allowed me to gain a rich and deep understanding of each participant's understanding of the phenomenon based on their personal experiences.

When developing a qualitative study, there are several research designs to consider. The primary purpose of qualitative research is to describe phenomena that occur in the world (Burkholder et al., 2020). There are five main types of qualitative research designs: (a) case study, (b) ethnography, (c) phenomenology, (d) narrative, (e) and grounded theory (Burkholder et al., 2020). Qualitative case study research is defined as a method that is used to investigate a phenomenon in depth and within its real word

context (Yin, 2018). A case study approach should be utilized when three criteria are met: (a) to answer how and why questions; (b) when the researcher has little or no control over behavioral events; and (c) the focus of the study is contemporary as opposed to historical (Yin, 2018). Case study research methods involve studying a case or multiple cases in significant depth in their real-world contexts and employing a variety of data sources, which may include direct observations, interviews, focus groups, documents, artifacts, and other sources (Burkholder et al., 2020).

Ethnography, another type of research design, focuses on interpreting the functioning of a cultural group concerning a phenomenon (Burkholder et al., 2020). Case study research and ethnography differ in that an ethnographer lives and studies in the cultural environment and collects data, while a case study researcher observes and collects data in a bounded setting (Yin, 2018).

Phenomenology is described as a research design that can help a researcher understand how people perceive a phenomenon and how to avoid misunderstanding by focusing directly on people's lived experiences (Burkholder et al., 2020). Phenomenological researchers seek to understand the experiences of individuals who share a common experience (Burkholder et al., 2020). Narrative research focuses on telling stories in a narrative format, while a grounded theory design is primarily focused on developing theory (Burkholder et al., 2020).

The rationale for selecting a qualitative case study research design aligned with the concepts described in Burkholder et al. (2020) and Yin (2018). A qualitative case study approach allowed me to explore the perceptions of various stakeholders regarding

the skills gap and strategies to help close the skills gap. The perspectives of principals, teachers, counselors, and business leaders from different industries are beneficial in understanding how educators perceive that students are being prepared for the workforce and how business leaders perceive students' preparation for the workforce for the job.

Case study research allowed for in-depth exploration to answer the research questions by compiling a comprehensive picture of a bounded unit around a phenomenon (Burkholder et al., 2020) using multiple data sources, such as semistructured interviews and document analysis. This was most appropriate to attain a comprehensive understanding within the study school district and stakeholders' perceptions regarding the skills gap related to CTE programming. The goal was to explore what was happening in the bounded unit. A bounded unit is a single entity in which there are boundaries (Burkholder et al., 2020), which in this study were the CTE programs within the study district. A case study also focuses on a unit of analysis, which helps establish the boundaries of the case study (Baxter & Jack, 2008). In this case, the units of analysis centered on the stakeholders, which included principals, teachers, counselors, and business leaders from different industries.

Role of the Researcher

Burkholder et al. (2020) described the role of the qualitative researcher as that of the primary data collection instrument. As such, the role of the researcher is a central consideration in qualitative research (Ravitch & Carl, 2021). As the primary instrument for data collection, this brought me into a unique role as both a participant and an observer. There are several roles of a researcher: (a) complete participant, (b) participant-

observer, (c) observer-participant, (d) complete observer (Burkholder et al., 2020). A complete participant immerses themself into the unit of analysis; a participant-observer shares with the participants but also steps back to observe; the observer-participant shifts to more of an observer role, and the complete observer is not present with the participants in the setting at all (Ravitch & Carl, 2021). Given my role in the study district, I served as more of a participant-observer for this study during the interview process.

I have served in K-12 education for 17 years as a CTE teacher, assistant principal, collegiate administrator, and central staff administrator. I currently serve as the director of a CTE center in the study district. The CTE center, where I serve as director, was excluded from the study. Study sites included in the study were comprehensive high schools with CTE programs. Participants were purposively selected from these schools and the communities they served to ensure I had no supervisory or evaluative capacity over participants and to avoid undue influence.

The goal of purposeful sampling is to find individuals or cases that provide insights into the specific situation under study, regardless of the general population (Ravitch & Carl, 2021). Any preexisting relationships with participants in this study were professional. Bias was another potential challenge in the data collection process. To navigate bias, no participants were chosen from my current school. I employed reflexive journaling throughout the research and data collection and analysis process. Burkholder et al. (2020) defined reflexive journaling as an ongoing narrative of the researcher's rationale for the study, assumptions, values, and relationships with the participants in

terms of culture and power. I used reflexive journaling to monitor and mitigate bias and ensure transparency throughout the research process.

Methodology

A qualitative case study design was used to explore the perceptions of principals, teachers, counselors, and business leaders from different industries related to the skills gap among career and technical education students in a large urban school district in Texas. Yin (2018) defined a case study as a research method that investigates a contemporary phenomenon in depth and within its real-world context. According to Yin (2018), case studies often involve examining a variety of evidence, documents, artifacts, interviews, direct observations, and participant observation. This section focuses on the participant selection process, instrumentation, procedures for recruitment, participation, data collection, the plan for data analysis, trustworthiness, and ethical procedures.

Participant Selection

According to Ravitch and Carl (2021), participant selection requires a clear understanding of the goals of the research questions. The site for this study was in a large urban school district in Texas. Approximately 141,000 students in pre-kindergarten through 12th grade are served in the study district. Approximately 9,000 high school seniors are enrolled in CTE programs of study each year. Participants included three principals, two teachers, two counselors, and two business leaders from different industries using purposive sampling. Ravitch and Carl (2021) described purposive sampling as an opportunity for the qualitative researcher to deliberately select individuals because of their unique ability to answer a study's research questions. The rationale for

the number of participants was to gain multiple perspectives from participants in the same role. The eligibility criteria were participants who (a) currently serve as a secondary school-based professional or business leader in the study site and (b) participants who have worked with or around CTE programs within the past 5 years.

Participants were purposively selected based on their level of understanding of CTE programs of study to better inform answering the research questions. Principals were included based on their roles in decision making processes related to the CTE programs that were offered on their campuses. These participants were asked to share their thoughts on the effectiveness of those programs as it related to the skills gap. Teachers were selected who offered unique perspectives as they saw, first-hand, any gaps in curriculum and instruction. Counselors were selected who offered insight as to how students were advised and scheduled and what course offerings were available. Business leaders from different industries were included who provided accounts of the current workforce and what was needed.

A partner organization agreement from Walden University was given to officials in the study district (see Appendix B). Upon approval from school district officials, emails were obtained from the study district's global address book and from the study district's career and technical education director. I sent the recruitment email to all eligible participants that contained the informed consent (see Appendix C). Each participant was asked to respond within 5 days with "I consent," if they agreed to participate. A follow-up recruitment email was sent to those participants who had not yet

responded within 5 days. Upon receipt of the agreement to participants, the interviews were scheduled.

Instrumentation

Ravitch and Carl (2021) stated that qualitative data collection should be intentional, rigorous, and systematic, and it should not be guided by overly rigid rules and procedures. One-on-one, semistructured interviews was the primary data collection method for this study. Prior to conducting interviews, an interview protocol (see Appendix D) was prepared with open-ended questions that were asked of each participant to ensure there was uniformity in the data collection process. The interview protocol helped to prepare and be organized for the interview process (see Ravitch & Carl, 2021). The interview protocol included the date, location, start time, and end time. It also included the introduction, interview questions, potential probes, and conclusion to debrief the participants and explain the member check process (see Burkholder et al., 2020). During the interview, memos of the responses as well as observations of participants was noted. Probing questions were asked based on the participants' responses. The interview questions were aligned to the research questions and conceptual framework to elicit in-depth responses related to the purpose of the study.

It was important to ensure that the interview protocol had content validity; in other words, to ensure that the protocol measured exactly what should have been measured and addressed the research questions (Burkholder et al., 2020). Additionally, it was important to reduce researcher bias in the creation of interview questions (Burkholder et al., 2020). Therefore, I avoided biased or leading words and phrases that

could have influenced the participants' responses that could have indicated a particular opinion held by the researcher (Burkholder et al., 2020). Another step I took to ensure the validity of my instrument was to ensure that all questions were designed to only capture data regarding one construct. This was done by refraining from using the word *and* in my questions so that I could avoid collecting data that was confusing and more difficult to analyze. Lastly, I used the conceptual framework, organizational alignment theory, to evaluate the interview questions related to the underpinning of this study (see Appendix E). When reviewing the questions, I made sure that the data collected contributed to a comprehensive and vertically aligned understanding of the problem. The steps described above all contributed to the validity of my interview protocol.

The second data collection strategy was document analysis. The study district develops a district improvement plan annually, and each campus also develops a campus improvement plan each year. These plans follow strict guidelines set forth by the state's education agency. The superintendent typically develops the outline for the district improvement plan with input from other district leaders and stakeholders. The campus principals lead efforts to develop the campus improvement plan along with a committee of campus stakeholders such as other campus administrators and teacher leaders. District and campus improvement plans include student outcome goals, a comprehensive needs assessment, and problem statements (TEA, 2023). Both district and campus improvement plans are accessible through public records for document analysis purposes. A document analysis instrument was developed to include evidence of CCMR criteria in the district and campus improvement plans (see Appendix F).

Procedures for Recruitment, Participation, and Data Collection

For this qualitative case study, two data collection strategies were employed, semistructured interviews and document analysis. Semistructured interviews of 9 participants included three principals, two counselors, two teachers, and two business leaders from different industries from a large urban district in Texas regarding their perceptions of the skills gap among career and technology students. Semistructured interviews allowed me to ask questions that were aligned to the research questions and the conceptual framework and to ask probing questions after listening to the participants' responses. Upon gaining permission from the administration at the study site and Walden University's Institutional Review Board (IRB), participants were recruited through email. The email included the requirements to be eligible to participate and the informed consent. Participants who participated had the option to respond through email with "I consent." After 5 days, I sent a second email to participants who had not yet responded.

After speaking with participants to establish an interview schedule, I clearly explained what they were being asked to do as requirements of their participation, the rights and protections afforded to them and their confidentiality, which included their right to decline to respond to a question or to withdraw from the study at any time without consequence (see Burkholder et al., 2020). Approximately 30-45 minutes was scheduled for each interview. Interviews were conducted through audio- video conferencing, however, all cameras were turned off. All interviews were audio recorded only with the participant's permission. The participant responses were transcribed immediately following each interview. Member checking was used to ensure the validity

of the participants' responses. Burkholder et al. (2020) explained that member checking is also used to have participants provide feedback on findings as they emerge. An additional benefit of member checking is that it allows participants to provide feedback on the data analysis and inform the researcher if their analysis is representative of the data (Merriam & Tisdell, 2016).

Data Analysis Plan

Rubin and Rubin (2012) described the entire process of data collection and analysis as a process that takes the researcher step-by-step from the raw data collected during interviews to clear answers to the research questions. Coding is one of the earliest steps in the data analysis process and enables a researcher to organize the data and identify categories and higher-level themes to answer the research questions (Nowell et al., 2017). I used a combined approach to coding, using both deductive and inductive coding. I started the data analysis process by using deductive coding. Deductive codes are predetermined and based on a review of the literature, whereas inductive codes engage topics that are unexpected in the data collection process (Burkholder et al., 2020). I followed with inductive coding to modify the predetermined codes based on the data and continued to assign a word, acronym, or short phrase to summarize a piece of raw data (Saldaña, 2021). Another technique I employed was pre-coding, which is the process of circling, highlighting, bolding, and underlining rich or significant participant quotes or phrases (Saldaña, 2021). Coding helped me to identify the data that had meaning based on the research questions (Burkholder et al., 2020). Table 4 outlines the preliminary deductive codes that were used in the data analysis.

Table 4

Preliminary Deductive Codes

Descriptor	Code Label
Skills gap	SG
Soft skills	SS
Hard skills	HS
Problem solving	PS
Being on time	BT
Cell phone use	CU
Digital skills	DS
Enter the workforce	EW
Curriculum alignment	CA

To analyze the data, I used a thematic analysis process, following the process outlined by Braun and Clarke (2006). Nowell et al. (2017) defined thematic analysis as a qualitative research method where researchers are identifying, analyzing, organizing, describing, and reporting themes found within a data set. Braun and Clarke (2006) outlined six phases of the thematic analysis process: "(a) familiarizing oneself with the data, (b) generating initial codes, (c) searching for themes, (d) reviewing themes, (e) defining and naming themes, and (f) producing the report" (p. 87). I started the thematic analysis process by listening or and transcribing the participants' responses from the recordings of the interviews to familiarize myself with the data. Next, I generated initial codes, as described, and then searched for patterns to identify the emergent themes that were supported by the data. I then named the themes of the study and produced the results of the study.

Obtaining the perspectives of principals, counselors, teachers, and business leaders from different industries enabled data source triangulation to occur in the data analysis process (see Saldaña, 2021). Triangulation involves looking across different

kinds of data, such as semistructured interviews and documents and diverse frameworks to determine which interpretation best fits the data (Burkholder et al., 2020). District and campus improvement plans were analyzed using a six-phase thematic analysis process similar to the process that was used to analyze semistructured interview data. Morgan (2022) stated that document analysis should involve a first read of a document to ensure that the researcher understands the content. Therefore, I thoroughly read each document before I organized the data and prepared it for coding. Data triangulation was used to compare the campus improvement plans of each principal to examine any commonalities with CCMR implementation. The responses of each stakeholder were also triangulated to find patterns or themes among the various groups' responses.

Trustworthiness

Trustworthiness is evidenced by multiple strategies to address dependability, credibility, transferability, and confirmability (see Burkholder et al., 2020). In a qualitative research design, it is important to ensure the trustworthiness of the finding in the study. Burkholder et al. (2020) defined trustworthiness as the degree to which the researcher can have confidence in one's sources as well as the methods used to gather data. Lincoln and Guba (1985) described strategies for establishing the trustworthiness of qualitative research such as prolonged engagement with data, persistent observation of the phenomenon under study, triangulation of findings and analyses with peers, and member checks. For this study, the strategies to achieve trustworthiness in each of the four criteria is described.

Dependability

Dependability is often compared with reliability in quantitative research. Dependability means that there is evidence of consistency in data collection, analysis, and reporting, and reliability means that the instruments used to collect the data produce consistent results across the data occurrences (Burkholder et al., 2020). According to Merriam and Tisdell (2016), inquiry audits and audit trails are common methods of establishing dependability. To ensure dependability, I consulted with a colleague who was knowledgeable with career and technical education, to seek opinions about the findings and to clarify any areas that were not clear to the reader. Throughout the data collection process, I kept field notes that could be used for an audit trail. Audit trails are derived from field notes, along with memos or reflection journals about decisions made during the research process (Ravitch & Carl, 2021). Use of these strategies helped to establish dependability.

Credibility

In qualitative research, credibility means that the findings of the study are believable given the data presented (Burkholder et al., 2020). In quantitative research, internal validity confirms that the data collected aligns to the research question (Burkholder et al., 2020). Strategies I used to establish credibility were member checking and triangulation (see Guba & Lincoln, 1989; Merriam & Tisdell, 2016). Member checking involves the review of transcribed data and other relevant notes related to the preliminary analysis of the findings by participants (Burkholder et al., 2020). Triangulation is the use of more than one data source to verify the basis of a claim

(Burkholder et al., 2020). The data sources from the interviews of principals, teachers, counselors, and business leaders from different industries was analyzed to triangulate the preliminary findings leading to the results of the study. Triangulation was also used in the document analysis to compare the campus and district improvement plans to determine if there were any patterns or discrepancies that emerged related to CCMR evidence.

Transferability

To ensure transferability, it is a researcher's responsibility to provide a sufficient description of the setting and the assumptions of the study so that a reader can make an informed application of the findings of the study to their context (Burkholder et al., 2020). The quantitative equivalent of transferability is external validity, which provides a measure of the extent to which the findings of the study are generalizable to the population of interest for the study (Burkholder et al., 2020). Generalizations are limited in qualitative research, as the goal of qualitative research and the proposed study is to solicit individual perceptions from members of diverse stakeholder groups involved in the phenomenon of study (Ravitch & Carl, 2021). Therefore, to achieve transferability, I provided thick descriptions. Thick descriptions are specific details that will provide the reader with the context of the study and study sites and excerpts of the data collected from the semistructured interviews and documents that substantiate the themes derived from the analysis of the data (Ravitch & Carl, 2021).

Confirmability

According to Burkholder et al. (2020), qualitative research assumes some researcher subjectivity. Conversely, quantitative research aims at objectivity, extracting

the researcher from the study as much as possible so that there is little possibility for any researcher bias (Burkholder et al., 2020). Therefore, to ensure confirmability, qualitative research requires that other informed researchers arrive at essentially the same conclusions when examining the same qualitative data (Burkholder et al., 2020). A common practice to avoid researcher bias is peer debriefing (Burkholder et al., 2020). Peer debriefing with a trusted colleague was employed during this study to ensure I was not biased in my findings and that the analysis of the participants' responses were authentic as to what was stated.

Another practice is the use of a reflexive journal. Reflexive journaling is an ongoing narrative of the researcher's rationale for the study, assumptions, values, and relationships to the participants in terms of culture and power (Burkholder et al., 2020). As a novice scholar, I acknowledged some degree of bias based on my own perceptions related to the skills gap. To counter that bias, I used reflexive journaling to note my beliefs based on my prior experiences and to monitor any bias that could have emerged based on my perceptions that might have emerged during the data collection and analysis process. Using practices such as peer debriefing and reflexive journaling also helped to mitigate any potential bias that could have occurred.

Ethical Procedures

It is important for qualitative researchers to be mindful of ethical considerations. The research questions in this study were developed to explore participants' perceptions related to the skills gap. Burkholder et al. (2020) suggested that conducting research in one's own place of employment could pose potential ethical dilemmas such as

confidentiality, and concerns of conflicts of interest. I clearly articulated the ethical safeguards in place to protect participants from any risks after approval of the proposal by Walden's IRB.

I also provided participants with the informed consent to ensure that they were fully informed of their rights, potential risks, and protections to maintain confidentiality. I informed participants that they could rescind their consent at any time, and that I would immediately destroy all their personal data at the conclusion. Further, I assigned each participant an alphanumeric identifier to protect their identities and that of their school. I created a table with a list of participants with names and identifiers known only to me. No personal information was disclosed, therefore, no information needed to be redacted from the transcripts.

I conducted research in my school district; however, I did not include persons who worked in the CTE center where I serve as director. This step ensured there was no undue influence on participants. Additionally, I did not disclose the name of the school district or schools in this study. To further ensure confidentiality, I kept all data stored on a password-protected flash drive that was kept in a locked file cabinet that only I could access. All data are stored for 5 years following the completion of the study, after which all files are deleted.

Summary

This chapter focused on the research design and rationale, the role of the researcher, methodology, trustworthiness, and ethical procedures. The purpose of this study was to explore perceptions of principals, teachers, counselors, and business leaders

from different industries concerning the skills gap in career and technical education, and how they perceived change could be made. I conducted a qualitative case study because it was most aligned with my research purpose. The site that was used to conduct this case study was a large urban school district in Texas. I conducted semistructured interviews with 9 stakeholders who had first-hand knowledge and experience with the research problem. The use of purposive sampling to ensure participants met the inclusion criteria was described. The one-on-one, semistructured interviews that followed the interview protocol provided a structure for in-depth inquiry to establish consistency in data collection. A detailed data analysis plan was also presented, which included strategies that were used to ensure trustworthiness of the findings of this study. In Chapter 4, a detailed view of the case study's findings is presented.

Chapter 4: Results

The purpose of this qualitative case study was to explore the perceptions of principals, counselors, teachers, and business leaders from different industries about the skills gap in career and technical education students in an urban school district in Texas. After conducting a thorough review of the literature regarding the perceptions of the skills gap, limited studies included principals, teachers, counselors, and business leaders from different industries. To achieve results for this study, I conducted a case study using principals, teachers, counselors, and business leaders who work in or with secondary schools. Purposive sampling was used, and data were collected from three principals, two teachers, two counselors, and two business leaders.

Two research questions guided this study:

RQ1: What were the perceptions of high school principals, counselors, teachers, and business leaders from different industries related to the skills gap among Career and Technology Education (CTE) students?

RQ2: How did principals, counselors, teachers, and business leaders from different industries perceive CTE students' preparation with the skills needed for career readiness or college?

Setting

The setting for this study was a large urban school district in North Texas. The district was comprised of 36 high schools and approximately 9,000 seniors. After receiving approval from IRB, an invitation email was sent individually to nine potential participants within my professional network. Three principals were interviewed for this

study. Two spent most of their careers in the career and technical education realm, and all worked closely with industry partners to bring exposure and experiences to students. Two teachers were interviewed for this study. Both spent most of their careers in the CTE realm and served as coordinators working closely with industry partners to bring exposure and experiences to students. Two counselors were interviewed for this study. Both had several years of experience working with career and technical education and had similar experiences working with students when helping them decide on a career pathway. Two business leaders from different industries were interviewed for this study. Both had several years of experience working with career and technical education. One business leader primarily focused on student engagement, while the other focused on teacher engagement.

All participants gave consent to be interviewed and verbally to be audio-recorded for transcription purposes. A calendar invitation, which included the consent agreement, was also sent to all nine participants. I assigned alphanumeric identifiers to each stakeholder participant based on their role. Those serving in a principal role were assigned an identifier from PR1 to PR3. Those representing a teacher role were assigned TR1 and TR2. Those serving in a counselor role were assigned CR1 and CR2, and those serving in a business leader role were assigned BL1 and BL2. Confidentiality was maintained in the audio-recorded interviews, and each participant was sent a copy of the transcription to review and verify for accuracy. Table 5 below displays the demographic data for each participant.

Table 5

Stakeholder Participant Demographic Data

Participant	Years in Education	Years in Role	Years working with CTE
PR1	10	3	7
PR2	29	9	6
PR3	12	4	5
TR1	28	10	10
TR2	15	14	15
CR1	19	6	6
CR2	21	14	17
PR1	10	3	7
BL1	7	7	7
BL2	11	11	6

PR1 served in education for 10 years, with 3 years of experience as an administrator. PR1 is currently the administrator of career and technical education and oversees mandatory college and career courses that students must take prior to entering high school. PR1 has worked with many high schools as a district coordinator as well, supervising CTE programs and being responsible for recruiting, securing business leaders, creating CTE schedules for students, and ensuring students followed a particular CTE program of study.

PR2 served in education for 29 years. PR2's experience related to career and technical education centered around the pathways to technology (P-TECH) program, which included a construction program where students also earned an associate degree. The program aligned CTE high school courses to college courses at the local community college for dual credit. Students were required to apply for the program with 125 ninth graders being accepted each year.

PR3 served in education for approximately 12 years. PR3 has a vast background in science, technology, engineering, and math (STEM), P-TECH Programs, National

Academy Foundation (NAF), and career programs. She has served as a teacher, CTE coordinator, and administrator. Currently, PR3 serves as the administrator supervising the career and technical programs on and off campus. PR3 ensures students are scheduled for the correct CTE courses beginning in the ninth grade according to the state's requirements.

TR1 served for 28 years in education, about half of which were centered around career and technical education. She has worked as a CTE teacher, coordinator, and administrator of an early college high school program. Currently, TR1 teaches an entrepreneurship class where students learn to pitch a business idea to various business leaders. Students in the entrepreneurship class compete in local, state, and national competitions if they advance. At the end of the course, students are administered an industry-based certification exam in entrepreneurship.

TR2 served in education for 15 years, all in the career and technical education area. TR2's teaching experience has primarily been in business, accounting, and entrepreneurship, all of which are career and technical education classes. TR2 also had the opportunity to work as an industry partner coordinator for one year. In this role, TR2 primarily focused on working with business leaders who partnered with the district and provided learning experiences for the students, such as shadowing opportunities and priority jobs upon high school graduation.

CR1 served in education for 19 years, 6 of which have been as a counselor working with career and technical education courses. CR1's role was vast to ensure students were on track for being college and career-ready. This involved counseling,

providing students opportunities to explore career options, and scheduling students in coherent course sequences after students selected a particular program of study.

CR2 served in education for 21 years, 14 of which have been as a counselor. She is currently a counselor at a career center that offers approximately 18 programs of study. Students travel to the career center and stay for half a day taking career and technical education courses. CR2 is responsible for ensuring that all students are following a coherent course sequence according to the state requirements. CR2 has also worked as a P-TECH counselor where students were aligned with high school CTE courses and college courses. The dual credit program allowed students to receive a CTE credit, as well as a college credit towards an associate degree.

BL1 has worked with CTE education programs for 7 years. BL1 works in the healthcare industry as a nurse and runs a non-profit business foundation that provides resources to the community. BL1 has served directly in the schools as a guest speaker in classrooms and provided hands-on learning experiences for students with CPR, vital checks, and various aspects of skilled nursing.

BL2 has worked with education programs for 11 years, 6 years centered around CTE programs. BL2 has a vast background in CTE, ranging from Arts/AV to Construction to Healthcare. BL2's main role was observing students and training and providing feedback to teachers and administrators on CTE curriculum that supported student outcomes.

Each of the participants above was able to offer a unique perspective regarding the perceptions of the skills gap among career and technical education students. Of the

nine participants, three had more than 20 years of experience in education, five had 10 or more years of experience in education, and one had more than 5 years of experience in education.

Data Collection

The primary data collection method for this case study was semistructured interviews with nine participants, and the secondary data collection method was campus and district improvement plans. For the semistructured interviews, an interview protocol was developed and implemented. The purpose of the interview protocol was to provide a consistent framework to document the participants responses. The campus and district improvement plans were accessed from the district's website. The campus and district improvement plans, or documents, were examined to determine whether there was information that could provide additional context to data already collected during the semistructured interviews. Additionally, the campus and district improvement plans were examined to further confirm or refute interview data.

Semistructured Interviews

Interviews lasted from 20-35 minutes in length. All nine interviews were audio-recorded only using the virtual platform Microsoft Teams. No participants were captured on video. Microsoft Teams was used to ensure data accuracy, as each audio-recording produced a transcript as well. Following each interview, all transcripts were emailed to the participants to ensure accuracy.

Prior to conducting the semistructured interviews, all participants were emailed the leader interview consent form with calendar invitations sent to each participant,

which also included the consent form attached to the invitation. After each participant gave their informed consent, the interview was confirmed. After logging on to the Microsoft Teams platform, I informed each participant that I was audio-recording only and that they could stop the interview at any time. After I started to record, I also asked each participant for verbal consent. All participants were excited to share their experience, knowledge, and perspectives around career and technical education and what they perceived as the skills gap.

Following each interview, the transcript was emailed to the participant to verify the accuracy of its content. The process of verifying data for accuracy is known as member-checking, which is a key part of creating trustworthiness (see Lincoln & Guba, 1985). All nine participants acknowledged receiving the transcript, and all verified accuracy of the data they provided. No changes, additions, or deletions were made. Additionally, as stated in the leader interview consent form, each participant was also sent a $10 gift card via text message following each interview. Upon completing each interview, I listened to each recording multiple times and printed and read each transcript, underlining and color-coding the data.

Campus/District Improvement Plans

The second source of data included the campus improvement plans from the administrators' campuses and the district improvement plan. I could access the district improvement plan and each administrator's campus improvement plan from the district website for review. All improvement plans were publicly available and did not require

any special clearances or approvals from the district and did not hinder the data collection process.

The data analyzed in these documents focused on the CTE goals. Specifically, I used the document analysis instrument, whereby I evaluated data such as mission and vision, number of CTE programs of study offered, and evidence of CCMR data goals. The district and campus improvement plans were documents that outlined the overall data, including student and teacher demographics and student and teacher performance. The plans also guide the district and campuses on how to set goals for the upcoming years based on the data. Subjects typically covered in a district and campus improvement plan also include measurable goals and objectives, a needs assessment, action plans, timelines, and a progress monitoring plan. The primary goal of these types of improvement plans is to continuously improve the outcomes for the district and campuses. Therefore, these documents are generally fluid.

Data Analysis

Upon completion and review of the semistructured interviews and document analysis, I immediately began the data analysis process. To begin, I employed a pre-coding technique. Saldaña (2021) defined pre-coding as the process of circling, highlighting, bolding, and underlining rich or significant participant quotes or phrases. I found the pre-coding technique extremely helpful in identifying meaningful data to the research questions (see Burkholder et al., 2020). Prior to conducting the semistructured interviews, I developed deductive codes based on the literature review, conceptual framework, and research questions. While deductive codes are pre-determined, inductive

codes engage topics that are unexpected in the data collection process and can be modified based on the data collection (Burkholder et al., 2020).

Data Analysis Process

I used the thematic analysis process to analyze the data, which followed the process outlined by Braun and Clarke (2006). Nowell et al. (2017) defined thematic analysis as a qualitative research method where researchers identify, analyze, organize, describe, and report themes found within a data set. Braun and Clarke (2006) outlined six phases of the thematic analysis process: "(a) familiarizing oneself with the data, (b) generating initial codes, (c) searching for themes, (d) reviewing themes, (e) defining and naming themes, and (f) producing the report" (p. 87). Initially, I listened, then transcribed and read each of the participants' responses from the recordings of the interviews to familiarize myself with the data. Next, I grouped the stakeholders by profession and generated codes, as described, and then searched for patterns to identify emergent categories that were supported by the data. I then named the themes of the study, thereby producing the results of the study. Each phase of the thematic analysis process ensured that the research questions were addressed. The research questions were also addressed using the organizational theory framework (Kathuria et al., 2007).

Phase 1: Data Familiarization

Upon finishing each audio-recorded semistructured interview, I printed the transcripts and highlighted and bolded text as I replayed the audio recording. The purpose of reviewing the data in this manner multiple times was to ensure the accuracy of the data and to identify common experiences and reflections from the participants. Reviewing the

data numerous times and seeing the common highlighted text also gave me an opportunity to reflect on the emotions shared by each participant and fully immerse and connect myself with the purpose of the study (Braun & Clarke, 2006). Having the transcript ensured that what was retained from the audio recording was true to its original form (Braun & Clarke, 2006).

I used the document analysis instrument to analyze the district and campus improvement plans. In some cases, the data from the improvement plans were aligned to the participants' responses. After I finished analyzing these data, archiving the raw data produced an audit trail. An audit trail can be tested later for adequacy and supports the trustworthiness of the study (Lincoln & Guba, 1985).

Phase 2: Generating Initial Codes

After familiarizing myself with the data and seeing what was interesting about the data, the next phase involved generating initial codes. Qualitative coding is a process of reflection and a way of interacting with and thinking about the data (Savage, 2000). During the coding process, I focused on specific characteristics of the data, assigned labels to the data as it related to common themes. For this study, I used a pre-coding technique and implemented a deductive coding scheme based on the research questions. I reviewed the research questions and decided to add deductive codes to my initial coding scheme. My preliminary coding scheme did not include many codes related to RQ2; therefore, I added three codes to reflect data related to RQ2. Table 6 shows the final deductive coding scheme that was used to begin analyzing the data.

Table 6

Preliminary Deductive Codes

Descriptor	Code Label
Skills gap	SG
Soft skills	SS
Hard skills	HS
Problem solving	PS
Being on time	BT
Cell phone use	CU
Digital skills	DS
Enter the workforce	EW
Curriculum alignment	CA
Career exposure	CE
Stakeholder collaboration	SC
Student interest	SI

Phase 3: Searching for Themes

While analyzing the data, I identified additional codes beyond my deductive coding schemes. The additional codes were generated by summarizing pieces of data (Burkholder et al., 2020). The next phase of the data analysis process moved into sorting the codes into categories for the purpose of identifying common themes amongst the participants. The topics formed from the broad themes were then used to develop the thematic statements that were aligned according to each research question. A theme was not necessarily dependent on quantifiable measures but rather on whether it captured something important in relation to the overall research question (Braun & Clarke, 2006). Table 7 and Table 8, which follow, shows the codes categories, and themes that were identified during the analysis.

Table 7

Sample Codes, Categories, and Themes: RQ1

What are the perceptions of high school principals, counselors, teachers, and business leaders from different industries related to the skills gap among career and technical education students?

Sample Codes	Categories	Themes
Problem solving Verbal communication Nonverbal communication Professionalism Coachable On time Cell phone Dress Interview Digital literacy	Soft skills Hard skills	A lack of soft skills is detrimental to the decline of students graduating from high school college and being career ready thereby widening of the skills gap
Adaptable Written communication Personable Ask questions	Personality traits Advocacy	There is a need for advocacy among stakeholders to help close the skills gap and increase the number of high school graduates who are workforce ready.
Certificates vs degree State accountability Needs of the community Needs of the students Parent perceptions	Shared goals and responsibilities	There is a need for clear communication and understanding among stakeholders of the vision, mission, and goals to address the decline of the skills gap.

Table 8

Sample Codes, Categories, and Themes: RQ2

How do principals, counselors, teachers, and business leaders from different industries perceive career and technical education students' preparation with the skills needed for career readiness or college?

Codes	Categories	Themes
Engagement strategies Career days Cultural awareness Middle school exposure	Career exposure Student Interest	CTE planning should include opportunities for students to be engaged with and explore career options aligned with their interests.
Committees Teacher learning opportunities Technology skills Teacher site visits Staff conferences Program selection Latest industry standards	Curriculum alignment Stakeholder collaboration Industry needs	Industry input is required to ensure that teachers are prepared for instruction and students are prepared for the workforce.

Phase 4: Reviewing Themes

During Phase 4, I reviewed the broad themes and thematic statements to ensure that they were relevant and addressed the research questions. It was also during this phase that I reviewed all codes and categories to ensure they adequately supported each theme because coding is an ongoing organic process (Braun & Clarke, 2006).

Phase 5: Defining & Naming Themes

During Phase 5, a detailed written analysis was developed identifying the narrative related to each theme (Braun & Clarke, 2006). Investing sufficient time to develop the themes helped support the trustworthiness of the results of this study, and increased the study's credibility (Lincoln & Guba, 1985). Further, the data were triangulated by the document analysis, which confirmed that goals established by CTE programs and external stakeholders were aligned. However, the student outcomes were not always aligned with CTE program goals. Table 9 shows the themes related to RQ1 and how each theme was supported with sample excerpts from the transcribed data. Table 10 shows how each theme related to RQ2 was supported with sample excerpts from the transcribed data collected during interviews.

Table 9

Themes, Categories, and Sample Excerpts: RQ1

What are the perceptions of high school principals, counselors, teachers, and business leaders from different industries related to the skills gap among career and technical education students?

Themes	Categories	Sample Excerpts
A lack of soft skills is detrimental to the decline of students graduating from high school college and being career ready thereby widening of the skills gap	Soft skills Hard skills	"The personable trait, being able to introduce yourself to people, being able to communicate clearly whenever you are introducing its products or individuals." (PR1) "I would rather take the kid who maybe has to put the work in…because that student, to, me tends to be more willing to open up, to learn, to listen to guidance, and is receptive to feedback." (TR1) "I would actually advocate for a coachable underperformer over an average employee that refuses to take feedback any day because being coachable demonstrates self-awareness of that person. (BL2).
There is a need for advocacy amongst stakeholders to help close the skills gap and increase the number of high school graduates who are workforce ready.	Personality traits Advocacy	"They need help with that communication piece, that advocacy piece, because I work with a lot of students who are just quiet." (PR3)
There is a need for clear communication and understanding among stakeholders of the vision, mission, and goals to address the decline of the skills gap.	Shared goals and responsibilities	"And then secondly, the perception of certificates compared to a degree. My family wants me to go to college. They don't want me to get a specific certification. I would definitely say [it] is exposure to the students as well as just the knowledge of what is CTE" (BL1). "Because they've been so focused on the society's degree, they don't necessarily get the CTE piece because, of course the college trumps everything" (CR1). "I think the more we equip the parents and the students to make the decisions better, then we can stand in it and close that gap" (TR2).

Table 10

Themes, Categories, and Sample Excerpts: RQ2

How do principals, counselors, teachers, and business leaders from different industries perceive career and technical education students' preparation with the skills needed for career readiness or college?

Themes	Categories	Sample Excerpts
CTE planning should include opportunities for students to be engaged with and explore career options aligned with their interests.	Career exposure Student Interest	"Getting individual hands-on training as soon as possible, and I think that's another thing is getting in front of the scholars as early as possible, not waiting until their senior year of high school." (BL1) "Again, strategies that we're thinking about, the core, but more so if we're thinking about the CTE classes, all those hands-on, it's important for those students to be able to collaborate, to work in small groups, to work in large groups, to be assigned, leadership" (PR1). "Making sure that they have the correct materials, training and education for the stakeholders, the high school teachers, the colleges, as well as the students" (PR2).
Industry input is required to ensure that teachers are prepared for instruction and students are prepared for the workforce.	Curriculum alignment Stakeholder collaboration Industry needs	"I think the understanding of what the industry partner expectations are, understanding what the curriculum and the skills experience are, and aligning those, putting those together" (CR2). "I don't think we listen to industry enough. We listen to understand and to meet our goals, but we don't listen to them enough to say, but this is what the kids really need" (CR1). "When we look at the skills that the colleges are teaching and then we look at what the high schools are teaching, I have found misalignment and what the industry expects or what they're using" (PR2). "I need you to come into what these students, especially with my upbringing not being in a place where I saw people who look like me in the careers that I wanted to be in. …so exposure, bringing those individuals in from either the trades from medical school, the colleges, in order to speak with those students, to mentor the students" (PR1).

Phase 6: Producing the Report

During Phase 6, I fully established the themes and prepared the final analysis and write-up of the report. The write-up of a thematic analysis provided a concise, coherent, logical, nonrepetitive, and interesting account of the data within and across themes (Braun & Clarke, 2006). During this phase, short phrases from participants were included along with more extensive passages to give the reader a flavor of the original text. Going beyond a description of the data by embedding short quotes or passages was done to convince the reader of the validity and merit of the analysis (Braun & Clarke, 2006).

Document Analysis

Document analysis involves the examination of pre-existing literature related to a study's topic (Morgan, 2022). For this study, I chose to analyze easily accessible documents, campus and district plans, to triangulate interview data and increase the validity and overall trustworthiness of this study. The analysis of pre-existing documents began with a reflection on answers to questions Burkholder et al. (2020) suggested that researchers ask:

- Is the document data available?
- Are the data good quality?
- Are the data relevant?
- Do I have access to the data, and may I use it?

I used these questions to evaluate the feasibility of using documents as part of my data collection process. The answer to each of the questions above was yes. Therefore, I collected and analyzed campus and district improvement plans to better understand the

goals related to CTE programs. I reviewed the document data during and after conducting interviews to help me gain more understanding of the priorities and shared goals of campuses and the district. However, my analysis of these documents supported data that were gathered during the semistructured interviews.

The campus and district improvement plans were evaluated using a content analysis process. First, I accessed online versions of campus and district improvement plans from the district's website. Next, I used the deductive coding scheme I developed for interview data to organize the document data into categories. The data that could be summarized using a deductive code were assigned that code as a category. Next, I reviewed the themes that had emerged from the thematic analysis of interview data to ensure that there were no discrepant data and that each of the themes were supported by document data. The content analysis of the document data confirmed that findings from the interview data. Additionally, the results of the document analysis were aligned with the conceptual framework because there was alignment among all data sources, which also indicated alignment among school and district leaders, and external stakeholders.

Results

The purpose of this research study was to gain a better understanding of the perceptions of principals, teachers, counselors, and business leaders from different industries regarding the skills gap in career and technical education. Each stakeholder had varying experiences in the CTE realm, but their perceptions and views as to what could address the skills gap were found to be similar. After reviewing the data, I found no discrepancies in the data. In presenting the results of this case study, the data from each

stakeholder was reviewed and aligned according to the themes as they related to answering the research questions.

Research Question 1

The first research question concerned perceptions of high school principals, counselors, teachers, and business leaders from different industries related to the skills gap among CTE students. The first set of themes emerged after an analysis of the participants' responses and the district and campus improvements plans. Three themes aligned with the first research question. Theme 1: A lack of soft skills is detrimental to the decline of students graduating from high school college and being career ready thereby widening of the skills gap. Theme 2: The gaps in core academic skills in high school have negative consequences on workplace performance and self-efficacy for recent CTE graduates. Theme 3: There is a need for clear communication and understanding among stakeholders of the vision, mission, and goals to address the decline of the skills gap.

Theme 1

A lack of soft skills is detrimental to the decline of students graduating from high school college and being career ready thereby widening of the skills gap. All participants conveyed information supporting this theme in their interviews. PR1 felt that the number one skill lacking was communication. Speaking clearly, annunciating, knowing how to write, being personable, and knowing how to introduce yourself, were all required soft skills for PR1. PR1 felt that soft skills should be embedded into every lesson, no matter the subject and stated:

> I don't believe that students understand the need to express themselves in a way that's not only behind a computer screen, so I would definitely say those soft skills, such as speaking, knowing how to write clearly, active voice even in their writing.

PR2 had similar feelings, having a proper resume, knowing how to interview properly, dressing for success, communication skills, and technical skills were most important. PR2 also felt that learning perseverance were important to know how to perform well on a job. "Those soft skills are important because any job that they take or any career that they work towards, they're going to need those skills."

PR3 believed that teaching students self-advocacy was most important. Being able to stand up for themselves and have a voice and ask questions was important for PR3, as many students lack those assertive skills. PR3 also felt that teaching students how to take care of themselves was an important skill to prepare them for the real world and the workforce. PR 3 felt that communication skills were needed and stated, "that communication piece, that advocacy piece, because I know I work with a lot of students who are just quiet."

TR1 shared that soft skills are not incorporated enough into the curriculum. TR1 felt that some students struggle when approached with basic or simple conversation such as greeting others or introducing themselves. Because of the lack of basic soft skills seen, TR1 says those basic skills are incorporated into the classroom. TR1 believes that every teacher no matter the subject, should be able to incorporate soft skills into the curriculum, even as simple as a basic conversation, and that not doing so is a "disservice." One of the

most important soft skills according to TR1 is drive and a willingness to learn and put in the work. TR1 stated:

> I would rather take a kid who is maybe not necessarily a student or someone who just excels . . . because that student, to me, tends to be more willing to open up, to learn, to listen . . . and be receptive to feedback.

TR2 had similar feelings and shared that soft skills such as basic typing should remain in the classroom and learning how to do speeches, or elevator pitches as they are called now, should still be taught. TR2, who has a background in business, felt that every career program should be based in teaching soft skills, so that students come out and have a solid foundation to be successful in the future. TR2 shared an example of knowing many people who were great cooks, but because they lacked a foundation in soft skills and business origin, the businesses changed names or closed.

When asked what specific skills they felt students needed to be successful in the workforce, both CR1 and CR2 felt soft skills were the most important. CR1, who has also served as an administrator, stated that soft skills such as being able to "have a conversation, knowing how to fill out a resume, knowing how to interview, being able to listen to understand and not listen to respond" were all critical. CR1 added that focusing on skills will ensure that educators are focusing on the whole child. CR1 shared educators, overall, miss the mark on ensuring that students leave high school with the necessary soft skills, such as basic listening skills. Because of accountability metrics, the focus is more on state testing. CR1 also felt that soft skills should be incorporated more into the curriculum and culture of the school to ensure that all educators are not just

focused on the number, but rather focused on the skill, which would ensure developing the whole child.

CR2, who had 14 years of experience as a counselor, shared that students need soft skills in order to have the confidence to sell themselves to potential employers, and that they must have the diligence to understand how to be the kind of worker that employers are seeking. CR2 also stated that educators are offering "life skills" to the students, which will carry them a long way. CR2, who has spent most of her educational career as a middle school and high school counselor, felt that because students are making a career program choice so young as 8th graders, that they are not sure what they really want, and that teaching them soft skills is necessary to help them to navigate their decision making.

BL1 felt that the number one skill that is lacking but is needed is communication skills. BL1 shared that basic communication skills such as communicating scheduling conflicts or dealing with conflict resolution are lacking, and as a result, workers carry those same habits from workplace to workplace. Other skill sets that are lacking, according to BL1, are listening skills, response skills, and respect. BL1 stated, *"*So, communication is definitely one . . . before we even get into any hands-on formal training . . . communication is the number one resource, that's lacking for sure."

BL2 shared the sentiment about communication being a skill set that is lacking. BL2 also added punctuality and time management as skills that are lacking. Specifically, organizational skills and keeping an accurate calendar are key. BL2 shared:

> It's really essential that young people have the determination to address problems on their own, come up with possible solutions, and then bring them to management instead of being stopped in their tracks anytime that they come across an obstacle.

BL2 mentioned that asking for help is also a skill set, but that young people should have solutions in mind when they do ask for help. BL2 shared that a "coachable underperformer" is preferrable over "an average employee that refuses to take feedback."

Theme 2

There is a need for advocacy among stakeholders to help close the skills gap and increase the number of high school graduates who are workforce ready. The gaps in advocacy and academic skills in high school have negative consequences on workplace readiness and self-efficacy amongst CTE graduates. CR1 felt strongly that a strategy to help close the skills gap is "seeking the interest of our students." CR1 stated that often time schools and districts select programs based on how much money students can make right out of high school, but that many times the students are not interested in those programs. CR1 stated that it was about giving kids options. "In schools, we need to stop doing that because it's not benefitting kids, and it's not benefitting the school community as a whole."

Another strategy to help close the skills gap according to BL1 is early exposure of CTE programs. "Getting individual hands-on training as soon as possible, and I think that's another thing is getting in front of the scholars as early as possible, not waiting until their senior year of high school."

BL2 agreed about early exposure. “I think the feedback that I’ve heard from a lot of administrators that I’ve worked with over the years is that there really should be more funding that’s allocated towards these programs at the lower level, so K-7.” BL2 also shared that a way to close the skills gap is for schools and industry to equally engage more. “Here’s the mutually beneficial thing for industries. If they engage with schools more, they can replace their workforce pipelines and expose students to a wealth of opportunities and advocate for their own professions.”

TR2 also agreed with early exposure as a strategy to close the skills gap. “Raising the expectations early. I think that our students, once they realize they need their skill, it’s too late.” TR2 also shared that students must take ownership. “So, to close that gap, we definitely have to have our students taking ownership… We’re choosing our career path and we’re standing in it. We’re standing strong. We’re standing on business that this is what we’re choosing to study.”

TR1 shared that lack of proper teacher training could contribute to the skills gap. TR1 shared that many CTE teachers are now hired directly from industry without teaching credentials, therefore, teacher training was critical. “But I think when they come to the campus, they expect I’m going to get out there, and I’m going to start showing these kids how to build houses, or I’m going to show these kids how to start welding. That’s one part of it, but you also have to teach these kids. There are structures. There are policies. There are procedures and routines that you have to put in place.”

Theme 3

There is a need for clear communication and understanding among stakeholders of the vision, mission, and goals to address the decline of the skills gap. Both PR1 and PR2 felt that while the engagement with industry and business leaders was evident, more could be done to align what is being taught in schools to what they needed in the industry.

PR1 felt strongly that while career days were great, more effort was needed from industry to invest in individuals who would support more exposure on campuses, other than perhaps two times a year. PR1 also felt that business leaders needed to consider the demographics of the student population when sending representation to the campuses. PR1 also mentioned that the representation needed to be from various industries so that students could see the possibilities. “I need you to come into what these students, especially with my upbringing, not being in a place where I saw people who look like me, in the careers that I wanted to be in.” Another alignment strategy that PR1 shared was having not only principals, teachers, counselors, and business leaders on advisory boards, but also having students and parents, so that everyone has a voice.

PR2 felt that alignment starts with all parties involved, schools, industry and community colleges as well. PR2 shared that misalignment has been found from what the high schools are teaching and what the industry expects or the equipment they are using. PR2 felt strongly that the onus was more on the schools and the community colleges to move away from book theory only and engage more with industry to see what is going to be required for students to graduate and earn a livable working wage.

PR3 shared that the misalignment is in the messaging. The example given was business leaders stating that they cannot find anyone who wants to work, yet the schools are training students to be ready for work after high school graduation. PR3 feels the missing piece is building in apprenticeships and internships so that business leaders have a pipeline of certified and well-trained candidates right out of high school. “I think the more we all understand the big picture and are in alignment, you understand why things are the way they are. So, with that being said you understand what type of curriculum we need, we understand what we need for partnerships, internships . . . so everybody knows their role.”

TR1 felt very strongly that the right people were coming to the table for conversations about the students. For example, when industry partners are invited to the campuses, TR1 felt that it was critical for teachers to also be involved in the conversations to bring perspective about the students being served. To go even further, TR1 felt even students and parents need to be involved in conversations related to career programs so that everyone is speaking the same language, and different perspectives are being heard. “So, I would say that campuses probably need to ensure that all the stakeholders who are going to be involved with the process are there, have kids there too, because you are hearing it from different perspectives. Have a parent in there… so having representation across the board and its consistent representation.”

TR2 shared that schools and industry could better align if exposure were consistent across the board. Specifically, exposure to all industries and ensuring that representation of the student population is considered. TR 2 felt that students benefit

when seeing people who look like them in professions, and that having opportunities for guest speakers and tours in corporate settings, reinforce the fact that "exposure is the key." TR2 also feels that industry partners are also looking for alignment. TR2 shared that industry partners want to see the trends with students in the internships so that educators can better prepare them for the workforce. TR2 said that ultimately effective communication between schools and industry about what they are looking for must be had to ensure that students are ready to hire and career ready. "Alignment is not just in the textbook and not just the student learning. I think stakeholders, including industry partners, play a huge role."

When asked how schools and industry could better align to support the goal of ensuring students are career ready, both BL1 and BL2 provided specific examples of how to improve. BL1 shared that representation of the student population was key. BL1 felt that in certain urban communities, students may not see industry and business leaders representing various industries, which look like them, but when they do, the exposure is highly beneficial. BL1 shared that the more schools seek out and find business leaders who can connect with the demographic of the student population, the better. BL1 also felt that alignment could be stronger in the area of curriculum with interviewing skills. All stakeholders should support what that looks like to ensure that students know what to say, when to say it, and how to say it, in any given situation. BL1 felt that students should be taught how to present themselves and carry themselves in all scenarios. BL1 shared:

> I think them [students] seeing someone that's able to code switch, per se, and show them, yes you can, you can keep your personality, but whenever it comes to

communication and it comes to expressing yourself in a professional manner, you're able to switch back and forth.

BL2 shared that frank discussions and collaboration needs to occur during advisory board meetings. BL2 felt that industries could and should be more involved with students in schools. For example, BL2 felt that business leaders should be in schools providing real world scenarios in the classroom thru simulated experiences. If an HVAC leader is the partner, then the HVAC leader could, for example, go through a real-world scenario that is experienced on the job. BL2 felt that this type of engagement and alignment could be beneficial for both students and business leaders.

The responses from the participants as it relates to Theme 3 align with the goals identified in the study site district improvement plan. One of the goals called for a higher percentage of CCMR graduates each year. Specifically, one of the performance objectives called for an increase the number of seniors obtaining an industry-based certification. The strategies outlined to ensure the performance objective was met were: (a) aligning the programs of study to meet TEA standards of accountability, (b) ensuring CTE Level II-IV coursework is aligned to TEA A-F industry-based certifications, (c) integrating special education career programs into new CTE centers, (d) providing professional development opportunities to ensure industry-based certifications are aligned to the programs of study as outlined by TEA, and (e) providing high grade commercial equipment to align with business and industry standards.

Theme 3 also aligned to the various campus improvement plans which outlined specific data and goals related to college, career, and military readiness. All campus

improvement plans were outlined in the same manner, including their vision, mission and goals. All similarly set goals for college, career, and military readiness. However, when looking further at the data, it showed more of a focus on college readiness, rather than career. After interviewing several of the principal participants, it was evident that because of the new accountability measures for CCMR, more of a focus would be put on career readiness, which includes industry-based certifications, and job opportunities.

Research Question 2

The second research question concerned how principals, counselors, teachers, and business leaders from different industries perceive CTE students' preparation with the skills needed for career readiness or college. Two themes addressed this research question: (a) CTE planning should include opportunities for students to be engaged with and explore career options aligned with their interests and (b) Industry input is required to ensure that teachers are prepared for instruction and students are prepared for the workforce.

Theme 4

CTE planning should include opportunities for students to be engaged with and explore career options aligned with their interests. Several participants concurred that this was a major factor in preparing students for the workforce.

PR1 shared that curriculum alignment is key, stating:

> So being intentional about the curriculum, about the learning opportunities, about the hands-on training that I received as a student, and the real-world training. Not just, I'm working on this just because, but no, this machine I'm working on is

> identical to a machine that I'll be working on once I graduate high school and enter the workforce.

TR2 shared the challenges, at times, with career and technical education teachers as it relates to preparation and instruction. TR2 shared:

> CTE teachers are a unique set of teachers. These teachers have the experience and sometimes don't have the educational background, and so to get them abreast on how to deliver their expertise in the best way for students to process it, a lot of classroom management, a lot of curriculum and instruction. Professional developments are offered to cater to their needs to better cater to the students.

C1 felt strongly that first, schools should develop those industry partnerships and make those exposures to different industries available to all students throughout the high school. C1 stated the importance of listening to partners when developing programs to ensure that students not only leave high school college prepared for life as an adult, but career ready as well. C1, who has served as a counselor and administrator in both an early college program and a career and technical education program, felt the reality is that not every student will go to college, but "all students have to be able to leave high school to go to work in some capacity." C1 felt educators do not listen to industry leaders enough and building stronger partnerships, listening, and having crucial conversations with industry partners is key to developing programs that are relevant, and once students understand the relevancy of a program, they will have buy-in and will remain in the program.

C2, who supported students in a high school career center, explained that most of the teachers come from industry, not education, and that because of that, it's so important to have industry partners come into mesh and partner with teachers to ensure students are learning the current skills that industry is seeking. Conversely, C2 also felt it was equally as important for industry to visit teachers who do not have a background in industry but are teaching career classes to ensure they aligned with industry needs. C2 felt that all stakeholders, administrators, teachers, counselors, and teachers benefit from industry input, which supports the success of the students in the workforce.

When asked what would help close the skills gap, both C1 and C2 felt that students' interest in the career programs they are choosing is very beneficial. C1 stated that often educators focus on programs where they can make a lot of money, but the problem is, students are not interested in those programs. C1 felt strongly that identifying the interests of students should be first to set the student up for success. C1 stated that it is about the right options for the students, whether college or career, but crucial conversations with students, parents, educators and industry leaders should happen to benefit students and, ultimately, the community.

C2 believed that it is important for students to be educated about their career pathway options to keep them invested in the opportunities in high school and after. C2 shared that the demand in the marketplace or labor market data can drive the programs of study that are offered, but it is important to consider what students' interests. C2 believed that many students do enjoy the hands-on component of many CTE programs, and once they gain a skill, they understand the value that the skill brings.

Theme 5

Industry input is required to ensure that teachers are prepared for instruction and students are prepared for the workforce. Several stakeholders felt industry input was essential for student success. BL1 stated, “It’s students seeing individuals like themselves in a particular role”, that is necessary. BL1 also felt it was necessary to ensure that the equipment on which students are working is not outdated, which will create a larger gap. “I’ve been to a few CNA certified nursing assistant programs and courses where I went to teach basic life support and some of the equipment that they used was literally 10-12 years old . . . extremely outdated for the society and the industry that we see today.” BL1 stressed that ensuring updated technology for students to use will set them up for success. BL1 also offered perspectives regarding communication going both ways and spoke about students participating on site work programs. “Having those individuals here, in seeing the way they interact with our patients, with our staff members, it shows us where we need to improve as a company.”

BL2, who has extensive knowledge in CTE curriculum, mentioned that it was important for teachers to understand “the purpose behind the curriculum, how to use the system, and how to do a lot of the activities.” BL2 felt that there could be more opportunities for teachers to collaborate with industry, but that it does not all fall on industry. BL2 elaborated:

> Industry needs to understand that their pipeline for employment is going to be coming from the youth of today, and I also think schools need to do a better job of

advocating to industry to help them understand the mutually beneficial relationship of collaborating with schools.

PR2 shared that industry input is essential to closing the skills gap. “When we look at the skills that the colleges are teaching and then we look at what the high schools are teaching, I have found misalignment and what the industry expects or what they are using.” PR1 shared that industry should be a part of the decision making, “and of course, our site-based decision-making committee, allowing those industry partners to have a say and to be a voice and see all that we are doing in the educational system.”

Evidence of Trustworthiness

Burkholder et al. (2020) defined trustworthiness as the degree to which the researcher can have confidence in one’s sources as well as the methods used to gather data. The strategies that were used to achieve trustworthiness in each of the four criteria are evidenced below.

Dependability

Burkholder et al. (2020) defined dependability as evidence of consistency in data collection, analysis, and reporting, and reliability as the instruments used to collect the data which produce consistent results across the data occurrences. To ensure dependability, I consulted with a colleague not associated with the research study, who served as a peer reviewer. Conversations stemmed around the progress of the study, participant recruitment, and data analysis. The peer reviewer also reviewed the tables I created during the data analysis phase to determine if they would be clear to the reader and appropriate for the study. According to Merriam and Tisdell (2016), audit trails are

common methods of establishing dependability. I developed an audit trail, derived from the field notes, which showed how the data were collected and how the codes and categories were analyzed to develop the themes. Consultation with a peer reviewer, along with use of field notes and an audit trail, helped establish dependability of the findings of the study.

Credibility

Burkholder et al. (2020) defined credibility as the findings of the study that are believable given the data presented. I established the credibility of the findings by analyzing the various viewpoints of the participants. Multiple perspectives were obtained from diverse groups of participants that included principals, teachers, counselors, and business leaders from various industries. Gaining multiple perspectives helped increase the credibility of the findings. Data were collected conducting semistructured interviews and from an analysis of the campus and district improvement plans. The document analysis was conducted to triangulate the transcribed data and to confirm the themes that were identified through the thematic analysis. The document analysis was compared to the thematic analysis to ensure alignment among the data and to identify discrepant data. However, no discrepant data were found. All the data obtained contributed to answering the research questions associated with this study. By obtaining multiple sources of data, I was able to verify the findings, which increased the likelihood that the findings were represented accurately.

Burkholder et al. (2020) defined triangulation as the use of more than one data source to verify the basis of a claim. Data were collected from the semistructured

interviews and district and campus improvement plans and triangulated. The document analysis was conducted using a content analysis process. I began by collecting documents related to CTE programs such as district and campus improvement plans. Next, I reviewed the codes identified during the thematic analysis of the transcribed data and used the coding scheme to identify related codes and data in the documents. Next, I compared the codes and supporting data in the documents to the codes and supporting data in the transcripts to ensure they were aligned. Patterns and commonalities were found among the data sources that related to the need for increased exposure to career and technical education programs. Burkholder et al. (2020) defined member checking as the review of transcribed data and other relevant notes related to the preliminary analysis of the findings by participants.

After completing each interview, I thoroughly reviewed and transcribed the responses. I also printed the transcriptions to read, highlight, and identify patterns across the data and align themes among the participant groups. I used the interview protocol for each session for consistency across the interviews. I conducted a total of 9 semistructured interviews. After each audio recorded session, I sent a copy of the audio recording and the transcription to each participant to review their responses. All participants validated their responses via email. I used the document analysis to disaggregate the campus and district improvement plans supported by the campus principals. Both member checking and triangulation of the multiple forms of data were conducted to help substantiate that the findings were represented accurately. No discrepancies emerged that related to the CCMR evidence. The data revealed that goals were set to support CCMR initiatives, and

that the expectation was that more students would leave high school CCMR ready. While the document analysis revealed alignment among stakeholders' goals, the goals did not support the themes related to high school students' unpreparedness.

Transferability

Burkholder et al. (2020) defined transferability as a researcher's responsibility to provide a sufficient description of the setting and the assumptions of the study so that a reader can make an informed application of the findings of the study to their context. I achieved transferability by providing thick descriptions using descriptive narratives that contained direct quotes from all participants that supported the themes. Thick descriptions are specific details that provide the reader with the context of the study and study sites and excerpts of the data collected from the semistructured interviews and documents that substantiate the themes derived from the analysis of the data (Ravitch & Carl, 2021). The use of thick descriptions can help readers determine if the findings of the study are relatable to other school sites.

Confirmability

Burkholder et al. (2020) defined confirmability as a process that is shaped by procedures and does not involve researcher bias. I ensured confirmability by peer debriefing with a trusted colleague to ensure I was not biased in my findings and the analysis of the participants' responses were authentic as to what was stated.

I also used reflexive journaling where I acknowledged my knowledge and experiences based on my own perceptions related to the skills gap. Reflexive journaling allowed me to counter and monitor any bias that could have emerged based on my

perceptions during the data collection and analysis process. During the semistructured interviews and the data analysis process, I purposefully and intentionally focused on the purpose of the study, instead of my own knowledge and personal experiences. As a novice researcher, using practices such as peer debriefing and reflexive journaling helped mitigate any potential bias and ensure confirmability.

Summary

My primary goal in conducting the semistructured interviews was to learn about the perceptions of principals, teachers, counselors, and business leaders from different industries regarding the skills gap in career and technical education. Two research questions were developed to understand: (a) what the perceptions of high school principals, counselors, teachers, and business leaders from different industries related to the skills gap among career and technical education students are; and (b) to determine how principals, counselors, teachers, and business leaders from different industries perceive career and technical education students' preparation with the skills needed for career readiness or college.

The principals, teachers, counselors, and business leaders from different industries interviewed ranged in a variety of years served in education and a variety of roles served in education. All perceived that students must leave high school with a particular set of soft skills to be successful in the workplace. All felt that the primary soft skill that was needed was communication skills. In addition to communication skills, the ability to speak clearly, advocate for themselves, enunciate, interview properly, and dress for success were needed. All felt that there was misalignment between schools and industry,

as it related to preparing students for the workforce. The thought was that more communication was needed as to the vision and goals for students up front. At that point, all stakeholders would be working towards a common goal.

In Chapter 5, I continue with the overall interpretation of findings. I also explain the limitations of the study, along with recommendations for future research. Chapter 5 ends with implications, the impact this study has on positive social change, and the conclusion.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this qualitative case study was to explore the perceptions of principals, counselors, teachers, and business leaders from different industries about the skills gap in career and technical education students in an urban school district in Texas. The study was relevant since little research existed on the perceptions of the skills gap from stakeholders such as principals, counselors, teachers, and business leaders from different industries. Nine participants from each of the various stakeholder groups were interviewed about their perceptions of how to address the skills gap and experiences with career and technical education and its impact on high school students. Studying the everyday lives of many kinds of people and what they think about different circumstances is a benefit of a qualitative case study design (Ravitch & Carl, 2021).

Two research questions were developed for this study:

RQ1: What are the perceptions of high school principals, counselors, teachers, and business leaders from different industries related to the skills gap among Career and Technology Education (CTE) students?

RQ2: How do principals, counselors, teachers, and business leaders from different industries perceive CTE students' preparation with the skills needed for career readiness or college?

A qualitative case study design was used to address the purpose of this study and to answer the research questions. The nature of the study centered around the idea that high school students were graduating without the necessary skills to be successful in the workplace. The intent was to gain understanding and perceptions from principals,

counselors, teachers, and business leaders from different industries regarding the skills gap. Gaining understanding from this set of stakeholders was critical in determining strategies and recommendations for how to close the skills gap. All nine participants had their own experiences related to CTE and, therefore, were able to offer their unique perspectives. Because there was very little prior research conducted in this field, there remained a gap in knowledge about the perceptions of stakeholders such as principals, counselors, teachers, and business leaders from different industries concerning the skills gap of CTE students.

The participants in this case study were asked a range of varied questions that centered around topics such as their experiences with CTE, their definition of the skills gap and how to close the skills gap, as well as stakeholder alignment as it relates to career and technical education programs. The sections that follow outline the key findings related to the conceptual framework of organizational theory. A thorough explanation of the key findings followed by an interpretation of the findings and the limitations of the study, recommendations, and conclusions.

Interpretation of the Findings

This qualitative case study involved the exploration of the perceptions of nine participants, including principals, counselors, teachers, and business leaders from various industries. Each participant had knowledge and experiences with CTE. Semistructured interviews yielded qualitative data that were analyzed. A detailed interpretation of the findings follows. This study was relevant because there was limited research from principals, teachers, counselors and business leaders from different industries collectively

regarding their perceptions of the skills gap among high school graduates. I investigated the perceptions of each of these stakeholder groups and found similar views in most areas. The qualitative case study design allowed me the opportunity to get an in-depth understanding of each participant through the semistructured interview process.

Key Finding 1

One key finding from this study was that stakeholders, from school professionals like teachers, principals, and counselors to external partners like business leaders all perceived high school graduates as being underprepared to enter the workforce. This finding was important because a misalignment among stakeholders might have stalled efforts for positive change to CTE programs and curricula. Because all stakeholders agree that there is a gap in career-ready skills, they may collaborate to redesign curricula or supplement existing CTE curricula to include effective learning opportunities or experiences to close the skills gap.

This key finding is supported by Kathuria's (2007) organizational alignment theory because it describes an aligned understanding of systemic need so there may be an aligned vision of success and the pathway to get there. This key finding was also supported by Aliaga's (2022) study, which also found that while there were positive perceptions about CTE programs, there were fewer positive perceptions about whether students were adequately prepared to enter the workforce after graduating high school. This experience was also documented in a study conducted by Lindstrom et al. (2022), who found that many high school graduates lacked hard academic skills, as well as soft skills that would make them employable. Still, as Brown (2022) underscored, alignment

around curricular outcomes is key because CTE program quality depends heavily on a shared set of expectations and goals.

Key Finding 2

Another key finding was that the skills gap encompassed hard skills and soft skills. The hard skills were described as technical skills needed to perform a job, whereas the soft skills were described as those skills needed to relate to or work with others. According to all participants in this study, both sets of skills were essential for postsecondary success. However, the underdevelopment of soft skills is actually widening the gap for graduates of high school CTE programs. When participants described the unpreparedness of high school graduates, they described soft skills like problem-solving and communication as impeding on-the-job success for CTE program graduates.

This finding confirms existing knowledge and is supported by Prasalova-Forland et al. (2019), who also asserted that soft skills are just as important as technical skills, and they contribute to the employee's self-efficacy and overall workplace culture. According to Dalporto and Lepe (2022), employers are increasingly recognizing soft skills as essential skills that any desirable employee should possess. However, Dalporto and Lepe (2022) also found that soft skills are not explicitly taught in school, which contributes to the skills gap.

Limitations of the Study

In qualitative research, limitations refer to factors beyond a researcher's control that could impact the results (Burkholder et al., 2020). For this study, there were several

limitations I had to mitigate. First, potential transferability issues were addressed by providing thick descriptions to report the findings of the study (see Burkholder et al., 2020). Thick description was also used to ensure the accuracy of reporting with detailed descriptions and quotes from participants that also address the credibility of the study. To ensure the accessibility of documents for document analysis, I chose documents that were publicly available and related to the focus of the study.

Bias was another potential challenge that could have arisen in the data collection and analysis process. Researcher bias was minimized by acknowledging my own subjectivity. To establish dependability, a reflexive journal was used to record my thoughts or reactions during data collection and analysis. Another way I established credibility was by member checking. According to Ravitch and Carl (2021), member checking involves the validation of data by participants. All participants validated their interview responses via email correspondence and no changes to their transcripts were requested. To mitigate any bias due to my experience as a director of a CTE center and my knowledge and experience of CTE programs, I used reflexive journaling throughout the data collection and analysis process. Burkholder et al. (2020) defined reflexive journaling as an ongoing narrative of the researcher's rationale for the study, assumptions, values, and relationships with the participants in terms of culture and power. The use of reflexive journaling helped to monitor and mitigate bias and ensure that transparency was practiced. As the sole researcher conducting this study, I am a current CTE administrator in the study district. While I am an employee of the study district, I did not have any supervisory or appraisal responsibilities for any of the

participants. All participants voluntarily gave consent to be a part of the study. The nature of our professional relationships and the study itself did not pose any risk.

Recommendations

All students should graduate from high school prepared for postsecondary success, whether in college or in careers. High school CTE programs offer students the opportunity to gain valuable knowledge and experience in career fields, so they enter the workforce prepared. However, as this study shows, there is a gap in skills among high school CTE program graduates. Although participants in this study identified soft skills and hard or technical skills are lacking, they all represented the southern region in the United States. Therefore, I recommend that additional studies be conducted to explore the perceptions of stakeholders from diverse regions of the United States to compare their perceptions to see if differences exist across regions and whether there are similarities or differences in the preparation of graduates from CTE programs.

I also recommend that future studies include a larger number of participants from various industries, so data can be disaggregated to identify possible patterns or themes by industry. As an example, future researchers could learn whether and how automotive business leaders perceive the skills gap as compared with cosmetology business leaders. This level of specificity could determine results that will enable curriculum-writers and CTE teachers to revise or develop curriculum relevant to their programs. Another recommendation is for researchers to conduct an exploratory study to learn more about how to develop soft skills in all CTE programs in the district along with constant alignment to industry hard skills. The results of this type of study could be used to amend

CTE curricula so that it meets the needs of students and potential future employers. The final recommendation is for a study to be conducted with teachers of postsecondary CTE. This study focused on high school CTE programming with the participants; however, many students pursue postsecondary CTE. A future study including postsecondary CTE programs and those stakeholders could yield pertinent information postsecondary teachers might use to support their students.

Implications

There are implications for positive social change and for practice based on this study's findings. The implications of the findings could lead to positive social change so that more high school graduates of CTE programs are prepared for the workforce with the needed for skills. When students graduate with the necessary skills to succeed in the workplace and are offered living wage employment as a result of their preparation and program partnerships with business leaders, there can be a direct benefit to the students, their families, and their communities.

The results of this qualitative case study found that stakeholders confirmed the skills gap resulting in recommendations for changes in practice. The participants in this case study all perceived soft skills, in addition to hard skills, as a major set of skills that are lacking with high school graduates. Recommendations for practice are below.

Recommendation for Practice 1

As more schools begin to focus on college and career readiness, a recommendation is to gather a group of varied stakeholders to discuss and agree upon a set of skills that could be implemented into the curriculum. A district advisory committee

could be formed, including parents, business leaders, district leaders, campus principals, teachers, counselors, and students. The purpose of the committee would be to review the alignment of learning opportunities, targeted skills, and expected outcomes during high school. This will help increase the preparation of students who graduate from CTE programs to have the skills needed to be ready for the workforce.

Recommendation for Practice 2

Based on the findings, I also recommend the establishment of partnerships between business and organizational leaders and CTE teachers and school leaders. The purpose of these partnerships would be to establish a collaborative structure for ongoing feedback about the effectiveness of CTE programs. Business and organizational leaders should work alongside teacher leaders to provide opportunities, such as internships or apprenticeships for CTE students to practice and apply the skills they learn in their CTE program so they may be better prepared for employment when they graduate. This structure could also allow stakeholders to regularly evaluate the effectiveness of the CTE curricula and increase the responsiveness of stakeholders to meet students' needs. CTE staff could then better monitor the curriculum and instruction being provided to ensure they are providing the latest technical and soft skills needed and using the latest equipment and techniques for skill instruction. Further, these collaborative partnerships with business leaders could establish a pipeline for employment and all involved would have greater confidence that students graduating from high school CTE programs have the skills needed to succeed.

Conclusion

The purpose of this study was to explore the perceptions of key stakeholders as it related to career and technical education students graduating workforce ready. Prior research focused primarily on types of programs of study and their preparation but did not focus specifically on collective action by a group of key stakeholders to address the overall skills gap. The intent of this study was to expand the research and fill a gap in practice by exploring the perceptions of principals, teachers, counselors, and business leaders from different industries in the southern region of the United States regarding the skills gap. The findings showed that more curriculum related to the soft skills needs to be incorporated, and stakeholders need to collaborate on goals and outcomes for high school students as they pertain to CTE programs. The findings also showed that the main attribute that business leaders were looking for was soft skills with professionalism and the ability to communicate, problem-solve, and work on a team among the top skills. The findings of this study extended the need for future research related to stakeholder alignment to better serve the needs of CTE students and to ensure goals and outcomes are not only agreed upon but also measured to lead to continuous improvement. From students' CTE program selection, to incorporating soft skills in the curriculum, to ensuring teachers align their classrooms to the latest industry standards and needs, and to ensuring students are exposed to different types of industries, on-going discussions and strategic planning focusing on these areas for alignment could address the skills gap in a proactive way resulting in students who graduate from high school CTE programs are college and career ready.

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Appendix A: CTE Programs of Study in Texas

Table A11

CTE Programs of Study: Texas Part 1

Agriculture (AG)) Food, & Natural Resources	Architecture & Construction	Arts, Audio/Visual Tech, Communication	Business, Marketing & Finance	Education & Training	Energy	Health Science	Hospitality & Tourism
Agribusiness	Architectural Design	Graphic Design & Multimedia Arts	Accounting & Financial Services	Early Learning	Oil & Gas Exploration & Production	Health Informatics	Culinary Arts
Animal Science	Carpentry	Digital Communication	Business Management	Teaching & Training	Refining & Chemical Processes	Healthcare Diagnostics	Lodging & Resort Management
Applied AG Engineering	Construction Management & Inspection		Entrepreneurship			Healthcare Thera	Travel, Tourism & Attractions
Environmental & Natural Resources	Electrical		Marketing & Sales			Medical Therapy	
Food Science & Technology	HVAC & Sheet Metal						
Plant Science	Masonry						
	Plumbing & Pipefitting						

Note. Table A4 includes the 14 CTE programs in Texas, along with the courses that lead to certifications within those programs.

(Career & Technical Education, 2023)

Table A12

CTE Programs of Study: Texas Part 2

Human Services	Information Technology	Law & Public Services	Manufacturing	Science, Technology, Engineering, Mathematics (STEM)	Transportation, Distribution, & Logistics
Family & Consumer Services	Information Technology Support & Services	Emergency Services	Advanced Manufacturing & Machinery Mechanics	Biomedical Science	Automotive
Health & Wellness	Networking Systems	Government & Public Administration	Manufacturing Tech	Cybersecurity	Aviation Maintenance
	Web Development	Law Enforcement Legal Studies	Welding	Engineering Programming & Software Development Renewable Energy	Diesel & Heavy Equipment Distribution & Logistics

Note. Table A5 includes the 14 CTE programs in Texas, along with the courses that lead to certifications within those programs.

(Career & Technical Education, 2023)

Appendix B: Partner Organization Agreement

WALDEN UNIVERSITY

A higher degree. A higher purpose.

Partner Organization Agreement
for AEAL Dissertation

Organization Name
Organization Email Address
Organization Phone Number
Date

The doctoral student, **Kyna Eberhardt**, will be conducting a dissertation study as part of the AEAL (Education Administration and Leadership for experienced administrators) EdD program. The student will be completing Walden IRB requirements *and our organization's research approval processes*.

I understand that Walden's IRB has given the student tentative approval to interview leaders (supervisors, board members, PTA leaders, community partners, state department personnel, and similar decision-makers) with whom the student has no power relationship. Details will be created for the final proposal, and the informed consent letter attached will be used. Depending upon the details of the student's study, deidentified organization data* may be requested.

> ****At the discretion of the organization's leadership, the student may analyze deidentified records including: aggregate personnel or student records that have been deidentified before being provided to the doctoral student, other deidentified operational records, teaching materials, deidentified lesson plans, meeting minutes, digital/audio/video recordings created by the organization for its own purposes, training materials, manuals, reports, partnership agreements, questionnaires that were collected under auspices of the partner organization as part of continuous improvement efforts (SIPs, for example), and other internal documents.*

I understand that, as per doctoral program requirements, the student will publish the doctoral capstone in ProQuest (withholding the names of the organization and participating individuals), as per the following ethical standards:

a. The student is required to maintain confidentiality by removing names and key pieces of evidence/data that might disclose an organization or individual's identity.

b. The student will be responsible for complying with policies and requirements regarding data collection (***including the need for the organization's internal ethics/regulatory approval as applicable***).

c. Via the Interview Consent Form, the student will describe to interviewees how the data will be used in the doctoral study and how all interviewees' privacy will be protected.

I confirm that I am authorized to approve research activities in this setting.

Signed,

Authorization Official Name
Title

Appendix C: Interview Protocol

Date:
Time:
Location:

Interviewer:
Interviewee:
Consent given?

Introduction
Greetings—Thank you for your time this morning. First—I will ask for your consent. Do you agree to be interviewed for this research study and audio-recorded? Thank you for agreeing to participate in this research study. I believe your input will be valuable. I am interested in understanding the perceptions of principals, teachers, counselors, and business leaders from different industries regarding the skills gap among career and technical education students. This interview will be audio recorded for transcription purposes and will last approximately 30-45 minutes. All responses will remain confidential as well as any identifying information such as school or company name. Participation in this interview is completely voluntary and at any point you can choose to stop the interview. During this time, I will ask you a series of questions which align with the research topic. I will monitor the time to complete the line of questioning in the time allotted.
Interview Questions
1.What is your personal background and knowledge related to career and technical education?
2.What professional development, training or conferences have you attended related to college and career readiness and how did it further your knowledge?
3.What specific skills do you feel students need to be successful in the workforce?
4. How are soft skills incorporated into the curriculum and culture?
5.How could schools and industry better align to support the goal of ensuring students are prepared for the workforce?
6.What training is provided for teachers?
7.What opportunities are given for teachers to collaborate and align with industry partners?
8.How would you define the term skills gap? 9.What do you feel would close the skills gap?

10.What do you see as strengths of the current college and career readiness program in the district and why? 11. How were the programs of study present on your campus selected?
12.What challenges have you faced, if any?
13.How have the new accountability measures affected your decisions and approach to meeting the CCMR accountability?
14.Where do you feel areas of improvement are needed with the current college and career readiness program in the district and why?
15. What does alignment mean to you?
16. How can alignment goals amongst all stakeholders help better support CTE and close the skills gap?
Closing Remarks
Do you have any closing thoughts? Thank you for your time and attention during this interview and thank you for your honest feedback. Your responses will help me gain a better understanding of the perceptions of the skills gap and how it varies or aligns with various stakeholders. As a participant in this interview, you will have the opportunity to review your responses to ensure your responses are accurate. Should you think of any questions later, please feel free to contact me via email at [redacted] or via cell phone at [redacted]. Thank you again for your time.

Appendix D: Research Question Alignment Table

Table D13

Research Question Alignment Table

Research Questions (RQ)	Interview Questions

RQ1: What are the perceptions of high school principals, counselors, teachers, and business leaders from different industries related to the skills gap among career and technical education students?	• How would you define the term skills gap?
	• What do you feel would close the skills gap?
	• What do you see as strengths of the current college and career readiness program in the district and why?
	  ○ Probing Questions:
	  ▪ How were the programs of study present on your campus selected?
	  ▪ What challenges have you faced, if any?
	• How have the new accountability measures affected your decisions and approach to meeting the CCMR accountability?
	• Where do you feel areas of improvement are needed with the current college and career readiness program in the district and why?

RQ2: How do principals, counselors, teachers, and business leaders from different industries perceive career and technical education students' preparation with the skills needed for career readiness or college?	• What is your personal background and knowledge related to career and technical education?
	  ○ Probing Question:
	  ▪ What professional development, training or conferences have you attended related to college and career readiness and how did it further your knowledge?
	• What specific skills do you feel students need to be successful in the workforce?
	• How are soft skills incorporated into the curriculum and culture?
	• How could schools and industry better align to support the goal of ensuring students are prepared for the workforce?
	• What training is provided for teachers?
	  ○ Probing Question:
	  ▪ What opportunities are given for teachers to collaborate and align with industry partners?

Appendix E: Document Analysis Instrument

Table E14

Document Analysis Instrument

	District Improvement Plan	Campus #1 Improvement Plan	Campus #2 Improvement Plan
Mission and vision	☐	☐	☐
Prior CCMR data	☐	☐	☐
Evidence of CCMR data goals	☐	☐	☐
Number of students enrolled in CTE courses	☐	☐	☐
List of programs of studies offered	☐	☐	☐
Evidence of progress monitoring plan	☐	☐	☐
Reflexive Notes			