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Graduates' Perceptions of Their High School Career Technical Education Work-Based Learning Experiences

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Walden University

College of Education and Human Sciences

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Cheryline M. Hewitt

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Walden University

2026

Abstract

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Learning Experiences

by

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MA, St. Peter's University, 1999

MA, Rutgers University, 1997

BA, Bucknell University, 1991

Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy
Education

Walden University

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Abstract

Little is known about how career and technical education (CTE) work-based learning (WBL) programs support student academic achievement and workforce outcomes. Guided by Kolb's experiential learning theory, the purpose of this basic qualitative study was to explore high school graduates' perceptions of their CTE WBL experiences and to identify how completing a CTE WBL program supported and hindered their academic and workforce achievement. Ten graduates of CTE WBL programs were recruited via postsecondary CTE school outreach, Facebook, and LinkedIn groups and participated in a semistructured interview. Thematic analysis using open coding was conducted. The data analysis resulted in three identified themes encapsulating recent CTE WBL graduates' perceptions: (a) instructional design translated into applied learning that bridged classroom and workplace; (b) WBL experiences catalyzed growth in resilience, critical thinking, and motivation; and (c) WBL equipped them with portable skills and credentials for workforce entry. These findings indicate positive personal, academic, and vocational outcomes for CTE WBL graduates. The implications for positive social change may include enabling practitioners to better inform CTE WBL students about success habits to maximize individual learning and encouraging intentional use of Kolb's experiential learning theory to strengthen teaching and learning practices to improve systemic coordination and alignment between CTE programs and WBL sites.

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Dedication

I dedicate this research study to my mother and father, both of whom passed as I completed my doctoral research, and my bonus dad. Their love, example, and dedication continue to inspire me. Their commitment to encouraging autonomy of thought was a game changer.

I dedicate this research study to my former students. It has been my pleasure to learn with all of you.

I dedicate this research study to the hard working teachers and administrators who truly love, appreciate, and understand the enormity of the commitment we took on when we signed up for this wonderful mission.

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Chapter 1: Introduction to the Study

Students who participate in career and technical education (CTE) programs consistently perform at higher levels academically than those who do not (Dougherty, 2022). Despite increasing interest in CTE programming and existing CTE models, limited research exists on participants' perspectives on these programs (Dougherty, 2022). Consequently, few studies have explored how graduates perceive their participation in CTE work-based learning (WBL) programs in relation to their academic and workforce achievement. Dougherty (2022) suggested more research be conducted to better understand graduates' perspectives to learn how to improve and expand current programming.

The Strengthening Career and Technical Education Act for the 21st Century (Perkins V) provided increased funding to increase student access to CTE programs. However, it is unclear how practitioners will respond to this opportunity to reduce institutional barriers and increase pathways for student success. States, districts, and schools that obtain Perkins V funds are subject to higher standards, including aligning their programs' plans with Perkins plans. School systems select from myriad federal government initiatives to strengthen students' academic learning and improve career pathways (Edgerton, 2022). CTE program initiatives are being developed and implemented because Perkins V funding and guidelines increased the demand for a more skilled workforce and desire to be more globally competitive. For example, stakeholders in New Mexico developed low-cost steps during COVID-19 recovery to integrate CTE and core curriculum, combine classroom and work-based learning, and align secondary

and postsecondary programs (Hoachlander, 2021). To increase career pathways, New Mexico developed short- and long-term policies and initiative goals to involve more students in helping the state become more globally competitive.

More rigorous research is needed on CTE programs specifically, the influence CTE programs have on student academic and career achievement. Findings from this study can provide further insight into the graduates' perceptions of why CTE WBL experiences may have supported academic and workforce achievement. In addition, experiential learning may aid achievement and could be incorporated into CTE programs. Graduates' experiences can inform CTE programs, practices, policies, and funding. Chapter 1 includes the background of the study, problem statement, purpose statement, research questions, and nature of the study. This chapter also includes definitions of terms, assumptions, scope and delimitations, and limitations. I also explain the significance of the study.

Background

Vocational and technical education (vo-tech) was developed as a strategy for providing minimal education for lower socioeconomic individuals, immigrants, and struggling students and provided alternative tracks students could pursue to obtain employment. Rapid industrialization, growth of cities, and businesses insistence that public education provide students with formal training resulted in the Smith-Hughes Act of 1917 (Gordon & Schultz, 2020). This was the first federal investment in secondary vocational education and provided funding for vocational education in primary and secondary schools.

In time, vocational education (vo-tech) programs lost support monetarily and with the public as negative assumptions were made about students participating in vo-tech programs. Additionally, the practice of “tracking” students into less rigorous academic programming contrasted directly with calls to address separate and unequal systems of education and the academic mandates of No Child Left Behind. Moreover, under Every Student Succeeds Act (ESSA), mandates for career and college readiness and educator accountability meant attention and funding were increasingly diverted from vo-tech education and steered toward high stakes testing for students and teacher accountability instruments. Nonetheless, student achievement remained stagnant or decreased, despite decades of policy changes, mandates, and funding directed to these measures, business owners lamented the low number of available qualified employees available. In 2018, Perkins IV–Carl D. Perkins Career and Technical Education Act of 2006, was reauthorized to Perkins Act V–Strengthening Career and Technical Education Act for the 21st Century. The name change was indicative of intentional changes in programming and potential shifts of public opinion regarding CTE. State policymakers crafted 4-year plans to implement the law and fully explore increased opportunities to create additional student access to CTE programs. Additionally, local and state level recipients of funds were charged with changing how funds were utilized (in contrast to Perkins IV). State education leaders were also required to align with ESSA and the Workforce Innovation and Opportunity Act (WIOA).

Perkins V Act recognized diversification of pathways away from solely traditional skills based vo-tech tracks, such as mechanics, manufacturing, training, and culinary.

Although these tracks still exist, additional pathways and in fields such as business, hospitality, legal assistant, allied health, cybersecurity, and advanced manufacturing provide students with education and training (Haviland & Robbins, 2021). Perkins V emphasizes programs supporting students in learning skills aligned with in-demand jobs and aligned with high-paying occupations (Dougherty, 2022). Perkins also further expanded success requirements and challenged institutions utilizing these funds to provide evidence of such.

The increase of funds from 10% to 15% requires needs assessments of various CTE elements and increases the flexibility for the use of funds allowing for more innovation in CTE programming and promoting programs aligned with high-wage, high-skill, or in-demand occupations (Edgerton, 2022). Perkins V also lifted restrictions on use of funds below seventh grade and developed a nationwide definition for CTE concentrator. These measures increase states' responsibilities to improve the quality of programs because CTE concentrators are now counted in state accountability systems. CTE concentrators are defined as students who complete at least two courses in a CTE program or program of study. Changes in uses of Perkins funding are noted through the creation of the Perkins Innovation and Modernization Grant Program and the encouragement of dual enrollment and early college high schools.

Labor force rates continue to decline in the United States. This shortage is leading to negative global outcomes for the country overall, resulting in a workforce being staffed by citizens of other countries who must fill gaps that exist in the United States. CTE programs positively impact student achievement and engagement and create post-

secondary pathways to careers or additional school opportunities, including certificate programs, and 2- and 4-year schools.

Secondary students who take CTE courses are more likely to graduate high school, enroll in 2-year colleges, and be employed with higher incomes the year after high school (Dougherty, 2022). Despite increased funding and expansion of CTE programs, which has included numerous career clusters and combinations of academic and work-based learning, there is insufficient research on the effects of CTE participation on high school and postsecondary educational attainment or workforce outcomes. A gap exists in literature exploring high school graduates' perceptions of their CTE programs. More research is needed to explore graduates' perceptions of their high school CTE WBL programs. A basic qualitative method was used in this study to examine graduates' perceptions of their lived experiences.

Problem Statement

Little is known about graduates' perceptions of their high school CTE WBL experiences. This issue prompted me to research literature on secondary CTE WBL programs. There was minimal research on how these students reflect on learning experiences involving CTE WBL participation and transitions to postsecondary academic and workforce experiences.

This topic demands further research because many high school students are not thriving in traditional high school programs. Many students are not motivated and engaged in school and experience disciplinary consequences due to poor attendance, low grades, and dropping out (Dougherty et al., 2021). Alternative methods for educating

students, such as CTE programs, provide multiple pathways for student success. Identifying beneficial CTE practices and approaches can result in increased awareness, implementation, and research. Families, educators, and business owners desire additional opportunities to support students. CTE programming is one pathway. CTE programs continue to expand and increasingly include access to WBL opportunities such as internships, fellowships, pre-apprenticeships, and apprenticeship programs. This expansion has spread across the country as demands for a skilled U.S. workforce increase. Despite CTE expansion, however, high school graduates continue to pursue postsecondary academics, resulting in the lowest level of students entering the workforce ever (Cho-Baker et al., 2021).

Students who participated in CTE WBL programs can provide insights regarding their experiences with regard to their pre- and postparticipation and impacts on postsecondary outcomes. These perspectives can inform stakeholders' understanding of student experiences and be used to refine CTE WBL programming to increase student awareness, access, and success. Additionally, schools, employers, and states can benefit from identifying and implementing successful components of CTE WBL programs.

Despite renewed interest in CTE programming, a significant research gap exists with regards to examining and exploring different CTE approaches and students' experiences with them (Dougherty et al., 2021). Educationally, a problem exists in that many students are not motivated or engaged; as a result, they are experiencing increased disciplinary consequences, poor attendance, low grades, and high dropout rates. Economically, a workforce problem exists in that employers are unable to obtain enough

skilled workers. The U.S. economy is not as globally competitive as it could be.

Purpose of the Study

The purpose of this basic qualitative study was to explore the learning experiences of graduates who completed CTE WBL programs in high school and how CTE WBL program completion promoted or hindered student academic and workforce achievement. The study explored the perceptions of students who successfully graduated from programs using this CTE approach specifically. Participants were interviewed to discuss their perspectives, which were analyzed and interpreted through the Kolb's experiential learning theory (KELT) framework. Using the KELT, I explored the CTE learning process moving through the four stages or pillars of the learning cycle. Additionally, D. A. Kolb (1984) offered four learning styles as additional influences on learning. The KELT suggests learning is a continuous process and cycle of learning opportunities.

Research Questions

RQ 1: What were the learning experiences of graduates who completed CTE WBL programs in high school?

RQ 2: How did completing a CTE WBL program in high school promote as well as hinder student academic and workforce achievement?

Conceptual Framework for the Study

The conceptual framework for my study is KELT. The KELT consists of four pillars: concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE) (Kolb, 2015; Devi & Thendral, 2023). Researchers can determine how experiential learning reinforces student learning and

helps transfer academic skills between the classroom and real-world by applying the KELT lens in academic and work environments.

The KELT framework was used in this study to examine high school graduates' perceptions of their CTE WBL experiences in the classroom and worksite. Developed by D. A. Kolb in 1984, the KELT emphasizes learning as a cyclical process whereby learners advance through the four pillars. Several researchers expanded the KELT as they found academic and vocational skills are reinforced and transferred between the classroom and the real world (Kolb, 2015). The KELT is based on the principle that individuals learn best when a cycle of learning occurs beginning with concrete experiences. The cycle continues to the final stage, active experimentation, where learners apply the new knowledge and experiences as they have a better grasp of the content and an understanding of their learning abilities (Devi & Thendral, 2023). Learners, therefore, are more likely to make meaning, personalize, and apply their learning.

Nature of the Study

To address the research questions in this study, the research design was a basic qualitative design using interviews with high school graduates of CTE WBL programs. Qualitative research is appropriate when examining the lived experiences of participants in a specific setting under specific conditions. The basic qualitative research approach gives participants opportunities to share experiences with the researcher (Lim, 2025; Patton, 2014). This approach was best suited to this study in exploring perspectives of participants because I collected and reflected on the data, identified emerging themes, and

answered how and why questions (Creswell & Poth, 2018, 2024).

I generated open-ended interview questions, and interview protocols were used during the semistructured interviews. I recruited 10 students who graduated from high school CTE WBL programs. These participants provided in-depth insights and reflections (Patton, 2014). Participants for this study graduated from CTE WBL programs between 2019–2023 and agreed to virtual interviews. I analyzed interview transcripts to develop themes related to high school graduates' perceptions of their CTE WBL experiences. The results from this study can potentially support and further current CTE literature. This growing foundation implores qualitative researchers to conduct further research investigating students' perceptions of CTE WBL programs and to examine CTE program variables, including types of schools with CTE programs: traditional high school, regional models, and dual enrollment. This study can be expanded to include perceptions of other stakeholders including families, educators, business owners, and states.

Definitions

This section includes definitions of terms related to this study.

Apprenticeship: “Combine on-the-job training with related instruction. Programs vary in who delivers the related instruction, in what format, and whether instruction provides secondary or postsecondary credit” (Kobes & Nayak, 2025, p. 6).

Career and technical education (CTE): “Organized educational activities that provide academic content and technical skills needed to prepare for further education and careers, provides technical proficiency or a recognized postsecondary credential, includes applied learning, may include coordination between secondary to postsecondary

education programs, and may include career exploration as early as middle school” (Haviland & Robbins, 2021, p. 4).

CTE concentrators: Defined by Perkins as “Students at the secondary level who have completed three or more CTE courses or have completed at least two courses in a single CTE program or program of study” (Haviland & Robbins, 2021).

CTE completer: “Student who completes at least two courses in a CTE program or program of study” (Perry, 2019, p. 16).

Experiential learning: Defined by D.A. Kolb for the purposes of experiential learning theory (ELT) “a theoretical process on the individual learning process that applied in all situations and arenas of life, a holistic process of learning that can aid in overcoming the difficulties of learning through experiences” (Kolb, 2015, p. xx).

Experiential learning theory (ELT): “a holistic theory of learning that identifies learning style differences among different academic specialties” (Kolb, 2015, p. xxiv).

Kolb’s experiential learning theory (KELT): “a perspective on learning that combines experience, perception, cognition, and behavior consisting of 4 pillars of learning: concrete experience, reflective observation, abstract conceptualization, and active experimentation” (D. A. Kolb, 1984, p. xxii).

Pre-apprenticeship: “Prepares individuals to enter and succeed in apprenticeship” (Education, E. C., 2020, p. 4).

Registered apprenticeship: “A small subset of programs in the Registered Apprentice system designed specifically to serve students starting in high school” (Kobes & Nayak, 2025, p. 6).

Student achievement: A multifaceted construct that can address different domains of learning, often measured in many different ways, and for distinctly different purposes (Guskey, 2013, p. 5).

Vocational education: “Schools which provided one of three types of training; schools offering training in trades only, schools offering trade training and general education, and schools offering apprenticeships, trade training, and general education (Gordon & Schultz, 2020. p. 1).

Work-based learning: Defined by Perkins as “sustained interactions with industry or community professionals in real workplace settings, to the extent practicable, or stimulated environments at an educational institution that foster-in-depth, firsthand engagement with the tasks required in a given career field, that are aligned to curriculum and instruction.” (Keily, 2021, p.1).

Youth apprenticeship: “An ecosystem to support apprenticeships connecting employers, students, and schools” (Katz & Elliott, 2020, p. 6).

Assumptions

The first assumption of this study was that the KELT aligned with CTE WBL programming. The second assumption was looking at CTE WBL programming through the KELT framework might have positive implications for student achievement. The third assumption was that participants would be open and honest during interviews. The fourth assumption was that students who have more access to experiential learning would be more engaged and have more successful learning outcomes than students who lacked experiential learning opportunities.

Scope and Delimitations

The scope of this study covered high school students who graduated from CTE WBL programs. The KELT was the conceptual framework guiding this study. Experiential learning theory is the basis for understanding the mindset and educational approach identified. This study can lead to replication of this approach leading to positive outcomes.

The study was delimited to high school students who graduated from CTE WBL programs from 2019–2023. Students who did not successfully complete a CTE WBL program during this time frame were excluded because this study’s focus was to examine high school graduates’ perceptions of their CTE WBL programs. The information obtained from participants can help researchers, educators, business leaders, and states make informed educational decisions regarding CTE WBL expansion and programming.

Limitations

Participation was not limited because of time commitments, access to the internet, or nervousness and/or distrust during interviews. Locating participants was a barrier initially. However, after working with IRB, I expanded my inclusion criteria which resulted in greater access to participants. To address limitations, participants were selected after being recruited, informed of the purpose of the study, and receiving and agreeing to adhere to consent guidelines.

Significance

This study was significant in that it fills a gap in literature exploring high school

CTE WBL graduates' perceptions of their learning experiences. There is limited literature on CTE graduates' reflections of their experiences (Dougherty, 2022). Positive social change can occur as educational leaders incorporate WBL programs to complement current CTE programs. Researchers, schools, business owners, and states will have a resource for identifying best practices for CTE WBL replication.

Despite increased CTE funding and expansion of CTE programs across the United States, students' attendance in 4-year colleges is increasing while workforce entry remains low (Hendricks et al., 2021). Additionally, business owners continue to express concern regarding the low workforce preparedness of individuals joining the workforce. This study is significant in expanding knowledge of how experiential learning theory supports CTE WBL programming and increases student achievement. The study fosters positive social change by exploring and learning from CTE WBL program graduates' perspectives on the positive and negative aspects of their learning experiences. The results can provide practical solutions and considerations to improve student academic outcomes and workforce preparedness.

Summary

In this chapter, I discussed the background, problem, and purpose of the study. I explained the conceptual framework, research questions, and nature of the study. Assumptions, scope and delimitations, and limitations were reviewed along with the potential significance to provide insight into approaches to increase high school CTE WBL students' academic achievement and workforce preparedness. In Chapter 2, the literature review provides further background research supporting this research study.

The KELT conceptual framework guided this basic qualitative study.

Chapter 2: Literature Review

The research problem addressed in this basic qualitative study was that little is known about graduates' perceptions of their high school CTE WBL experiences. There is limited qualitative literature on CTE graduates' perceptions of their participation in CTE apprenticeship programs (Dougherty, 2022; Dougherty et al., 2021). The purpose of this study was to explore graduates' perceptions of their high school CTE WBL experiences using an experiential learning theory lens. This study addressed the gap in research regarding high school CTE WBL graduates' perspectives of their learning experiences and of how their participation supported academic and workforce achievement.

In this chapter, I present relevant literature to provide an understanding of the problem, introduced the conceptual framework for this study, and explained how the framework applied to the context of the study. Chapter 2 begins with an overview of the CTE search strategy used to conduct a thorough review of the career and technical education literature and the conceptual framework, KELT, which guided the study. The KELT served as the framework through which I explored graduates' perceptions of their CTE WBL programs and how it helped or hindered their academic and workforce outcomes. The literature review sections are organized by themes that include CTE WBL programs and the KELT. I define and explain the KELT and its four pillars and four learning styles. In this study, CTE WBL graduate refers to an individual who completed all portions of the school and state requirements in accordance with their state's CTE WBL requirements. I use the KELT to analyze high school graduates' perceptions of their CTE WBL experiences and their academic and/or workforce outcomes. A summary

and transition into Chapter 3 complete the chapter.

Literature Search Strategy

I conducted this literature review using the following databases: Education Source, ERIC, Sage Journals, ProQuest Central, EBSCO Host, Eric, Sage Journal, and Google Scholar, and I met with Walden librarians. The overarching key search term was *career and technical education*, along with *apprenticeships*, *fellowships*, *internships*, *experiential learning*, *student achievement*, *workforce preparedness*, *work-based learning*, *skills gap*, and *college entrance*. I reviewed digital versions of scholarly and peer-reviewed journals and articles published from 2019–2023. The search process led to the following topics of career and technical education: work-based learning, apprenticeships, experiential learning, workforce preparedness, and labor market.

Conceptual Framework

Using KELT in conjunction with classic research of A.Y. Kolb, I explored high school graduates' perceptions of their CTE WBL program. I examined their perceptions of their learning experiences as they progressed through D. A. Kolb's experiential learning cycle, moving from concrete experiences to reflective observations, then to abstract conceptualization; and ultimately, active experimentation. During the concrete phase, the learner has exposure to a learning experience that might include a field trip, a lab experiment, or a role play (Kolb, A.Y. and Kolb, D. A., 2018). During the second or reflective stage, learners begin to reflect on and review learning experiences. They plan and integrate new concepts into their schema. In the active experimentation phase, learners' concrete experiences expose gaps in learning in controlled settings. Finally,

learners generate new ideas and scenarios during the abstract conceptualization phase and reflect on their application experiences and where they need to grow to repeat the cycle of continuous learning. D. A. Kolb (1984, 2015) addressed learning styles as additional influences on learning. Overall, the KELT presents learning as a continuous process and cycle of learning opportunities.

There is no single foundational theory by which CTE research data are frequently viewed. Rojewski (2022) pointed out many models and theories by which CTE research can be viewed. While Schmidtke's (2017) original work noted seven predominant theories and three theory groups. The three theory groups are social-cognitive (career) theory, andragogy/adult learning theory, and human capital theory. Within these categories, several more specific theories have been identified. This study is based on experiential learning theory, which comes out of andragogy/adult learning theory.

KELT in CTE and Other Disciplines

D. A. Kolb (1984) argued "learning is a continuous process grounded in experience . . . whereby knowledge is created through the transformation of experience" (pp. 28, 38). D. A. Kolb supported the adoption of learning styles across many fields (A. Y. Kolb & D. A. Kolb, 2009). The KELT is a learning model widely accepted by experiential educators.

The KELT (Kolb, 1984, 2015) has been used to research students' experiences on learning. These experiences include hands-on activities through courses and programs and/or sometimes a form of WBL work with a mentor or employer in a field of interest or potential future employment. ELT was an expansion of Dewey's reflective practice

concept. D. A. Kolb's experiential learning theory continues to be one of the most cited experiential learning theories. As more research is conducted in CTE spaces, researchers may be able to transfer the learning of effective KELT application to and from other fields.

Initial critics of the KELT offered separate models or pathways to promote reflective practice given the potential varied meanings and assumptions regarding the experience of the learner (Ryder & Downs, 2022). One area of the KELT identified as problematic is the lack of scaffolding in the model. Scaffolding is an instructional practice where a teacher gradually removes guidance and support as students learn and become more competent (Awadelkarim, 2021). Schenck and Cruickshank (2015) pointed out that Kolb moved away from the original and outdated cyclical model of experiential learning but did not adapt to current research and failed to increase understanding of learning. By 2015, Kolb himself recognized this area of concern and reframed the KELT. In the updated model, Kolb changed the learning cycle to a learning spiral of continuous learning. He compared the spiral to a shell where learning and reflection follow a structured, linear path. However, Ryder and Downs (2022) questioned the use of the reframed learning "spiral" as a shell explaining shells expand with experiences and exposure, making reflections on learning increasingly difficult. Additionally, they posited as individuals have more experiences, more than one shell may be possible, even preferable, adding to the complexity of reflecting on learning. Ryder and Downs also suggested that external inputs should cause change in direction, but point out that the KELT focuses on the acquisition model of skills formation as the endpoint in learning.

Ryder and Downs found this problematic, arguing attention to skills formation may not equip learners to acquire “soft skills” and experiences transferable to any workplace.

The KELT has been utilized in various disciplines. In one study, the KELT was integrated with educational supervision (Gordon, 2022) and its metacognitive aspects viewed in simulation and gaming (A. Y. Kolb & D. A. Kolb, 2009). Schenck and Cruickshank (2015) were first to explore the evolution of the KELT in the age of neuroscience. The KELT has also been studied in the field of nursing (Almalag et al., 2022). Research approaches from these and other disciplines may prove beneficial and replicable in continued CTE research.

ELT

Experiential learning is the process by which people learn, develop, and change in any setting throughout life. D. A. Kolb (1984, 2015) built upon prior explanations of reflective practice put forth by foundational scholars Dewey, Lewin, and Piaget (as cited in Boggu, 2021; Ryder & Downs, 2022). D. A. Kolb expanded the theory of experiential learning by incorporating a learning cycle with four learning modes and learning styles (Boggu, 2021). D. A. Kolb (1984) described the KELT as “a holistic integrative perspective on learning that combines experience, perception, cognition, and behavior” (p. 21). The process of learning is emphasized because ideas are formed and re-formed through experience in all four learning modes (Gordon, 2022). The distinctive feature of the KELT is the introspective stage of reflective observation that results from the grasping and transforming experiences of the learner (Boggu, 2021). The KELT identifies learning differences in many academic specialties and is used in an

interdisciplinary manner to address learning and academic issues in many fields (A.Y. Kolb & D. A. Kolb, 2009). This expanded explanation of ELT is the basis for understanding the mindset of graduates of secondary CTE WBL programs.

D. A. Kolb (1984) asserted that learning could occur and end at any phase of the four learning pillars: concrete learning, reflective learning, abstract conceptualization, and active experimentation. Coupled with the four learning styles: converging, diverging, assimilating, and accommodating, he posited that learning is a continuous cycle of learning opportunities, occurring at any stage and rarely after one exposure (Kolb, 2015). The logical connections between this framework and my study include the experiential nature of the four pillars and four learning styles. The KELT pillars and learning styles are explained below.

Four Pillars and Learning Styles

D. A. Kolb (1984) originally identified four pillars of the experiential learning cycle that inform learning experiences. Entry to learning can occur at any one of these pillars. In the first pillar, concrete experience (CE), also known as the discovery phase, the learner has exposure to a learning experience that might include watching a video, attending training, or reading a book, for example. Reflective observation (RO) is the second pillar. In reflective stage, learners begin to reflect on and review learning experiences. Learners plan and integrate new concepts (into their schema). In active experimentation (AE), learners' concrete experiences allow for exposure of gaps in learning. In AE, learning occurs in a controlled setting. The fourth pillar, abstract conceptualizations (AC), refers to learners generating new ideas and scenarios. In AC,

learners reflect on application experiences and identify where growth is needed to repeat the cycle of continuous learning.

Additionally, Kolb identified four learning styles specific to learners: converging, diverging, assimilating, and accommodating. Converging is characterized by doing and thinking and emphasizes AC and AE (A. Y. Kolb & D. A. Kolb, 2009, p. 317). Diverging is characterized by feeling and watching and emphasizes CE and RO (p. 317).

Assimilating is characterized by watching and thinking with an emphasis on AC and RO. Finally, accommodating is characterized by watching and thinking with an emphasis on CE and AE (p. 317). D. A. Kolb (2018) updated and expanded the learning styles from four to nine: experiencing, imagining, reflecting, analyzing, thinking, deciding, acting, initiating, and balancing.

The KELT suggests that the four pillars create and provide a continuous process and cycle of learning opportunities and learning styles. These learning opportunities and learning styles are personal to the learner and generate additional influence on learning. I used the KELT framework to focus on student learning through experiences using the four pillars and learning styles to assist in answering the research questions:

1. What were the learning experiences of students who completed CTE WBL programs in high school?
2. How did completing a CTE WBL program in high school promote or hinder student academic and/or workforce achievement?

In similar research, Boggu (2021) explored experiential learning in various contexts and disciplines and for a variety of purposes including strengthening learning

through learning tasks and equipping students with employability skills. Examining language learning, Boggu used D. A. Kolb's four modes of the learning cycle to develop tasks that would make learners aware of the learning process. A control and an experimental group of students were chosen; each received the same course materials and assessments. The experimental group completed 11 experiential tasks guiding them through the learning cycle. Participants reflected and recorded progress in learning journals. Boggu found learning is effective if the learner develops metacognitive (thinking about your own learning) strategies and confidence during the process. Boggu also pointed out that without appropriate experiential elements taking place throughout the learning cycle, surface learning occurs although, all learning becomes more meaningful through reflection (p. 131).

In another classroom based learning study, Balducci (2022) examined the experiential approach being used at Otago Polytechnic. To meet criteria, experiential learner activities were hands-on, related to a context in the world of work, required students to interact with one another, and allowed students to reflect on experiences (p. 30). Balducci interviewed 18 lecturers to identify and develop a resource bank of authentic activities for teaching staff across the fields of applied management, construction, information technology, and English. Participating lecturers commented on student performance, citing lack of interaction between students, negligible student reflection and critical thinking, and the need for effective time management, as well as pointing out connections between learner autonomy and student interaction (p. 36). Overall findings indicated a link between engagement and experiential learning,

specifically authentic and work-related activities. Participants noted that students were more motivated and engaged on work related tasks, but remarked on limited collaboration, reducing learning benefits and reflection (Balducci, 2022). Because experiential learning involves more than work related activities, Balducci (2022) suggested lecturers develop hands-on tasks that have a real-world context, and provide opportunity for students to interact and reflect. To help students maximize opportunities to develop soft/transferable skills, engage in teamwork, and refine their interpersonal behaviors, greater skill preparation is needed in areas such as time management manage, problem solving, collaborating, and reflecting (Balducci, 2022).

Literature Review Related to Key Concepts

The purpose of this basic qualitative study was to examine experiential theory as it related to 10 high school graduates' perceptions of their participation and completion of CTE WBL programs from 2019–2023. Based on my experience with high school students' performance, failure, and dropout rates, I investigated alternative secondary options for increasing student academic performance and workforce outcomes. There are limited postsecondary academic and workforce opportunities available to high school graduates because many are underprepared. Additionally, student dropout rates indicate a potentially significant threat to student success. I examined CTE programs as one method for keeping students engaged throughout high school (Michaels & Barone, 2020). As I searched literature on CTE, the experiential learning conceptual framework stood out to me.

High school dropout rates have serious implications for local economies and the

overall U.S. economy. Carruthers et al. (2024) found that CTE pathways have a positive effect on academic performance. Moreover, CTE participation can support graduates' transition into skilled positions, reducing unemployment (Howard et al., 2022). Michaels and Barone (2020) pointed out that one issue is that too many students are not engaged in high school as evidenced by poor attendance, low grades, poor performance on tests, and dropout rates. Their research found that CTE engagement and completion positively influenced student achievement. "By the end of 10th grade, student test scores, grade point averages, and progress toward graduation tended to be better for students enrolled in CTE programs" (p. 14). CTE course offerings were viewed as relevant for helping students persist, rather than dropping out of high school (Howard et al. 2022). While Fletcher and Dumford (2021) found that "well implemented career academies. . . may yield positive results for students in terms of college and career readiness. Dougherty et al. (2021) and Dougherty (2022) showed that CTE can smooth the transition to college and the workforce.

CTE Models

CTE programs are described as programs that allow students to participate in hands-on learning activities to deepen understanding and application of concepts relevant and important for future employment. CTE programs provide opportunities for students to engage in classes, programs, and real-world learning opportunities to develop skills and learn strategies for navigating academic and workplace landscapes. CTE models vary. However, two predominate: (traditional) comprehensive high schools and whole school (regional) (Dougherty, 2022).

Traditional/Comprehensive High School (Single Classes to Full Immersion)

Traditional Grades 9–12 secondary education may provide CTE courses, programs, and certificates. Most high school students take at least one course that can be considered CTE. Examples of these courses include business, family, and consumer science courses.

Regional Technical Center (Immersive: Dedicated High Schools)

Some secondary high schools provide more extensive access to CTE pathways for students. Regional technical centers allow students to attend the traditionally assigned high school for one part of the day and the regional technical center for the other part of the day. This model provides more time for labs, training, and acquiring experience. Other CTE models include experiential learning programs, designed to meet local needs and provide students with opportunities within local school programs and curricula, per local needs. State departments may not be fully aware of their existence. Additional CTE approaches include postsecondary focuses, such as Tech Elevator, a 14-week coding bootcamp available in several U.S. cities and online, which helps workers move into IT careers (Allen, 2020) and CTE apprenticeships.

Apprenticeship Programs

This model provides students with opportunities to acquire and meet technical and core graduation requirements (of that setting and state). This emerging approach is an uncommon model. However, it is available in a few states, such as South Carolina, Texas, Massachusetts, New Jersey, New York, and Connecticut.

Students who successfully complete a CTE apprenticeship can provide insight

into experiences, perhaps including their learning experiences and the mechanisms and infrastructure utilized to provide opportunities for success. CTE apprenticeship programs create a positive impact on student achievement in school and a successful postsecondary pathway to additional academics and/or the workforce. Youth apprenticeship is limited, but is an emerging and promising strategy being looked at to connect education (schools) and work (employers).

CTE programming is becoming desirable again as business owners seek to hire additional qualified employees. Support for youth apprenticeships continues to grow as students and employers seek pathways to earn credentials and family-sustaining wages. Several states and proactive CTE programs seek to include pre-apprenticeships, apprenticeships, and/or fellowships in CTE programming and are developing partnerships across K-12 education, postsecondary education, and employers. These partnerships build on the Registered Apprenticeship framework and provide students with opportunities to become economically self-sufficient (Gordon & Schultz, 2020).

CTE in Academics

CTE research in academics is very broad and spans a wide range of topics and interests. Dougherty (2022) pointed out that an opportunity for continued CTE research exists to include student and educator input because of the changing policy landscape. CTE research in academics continues; however, challenges remain.

There is increasing research comparing student achievement of CTE participants versus non-CTE participants. Shoemaker (2025) in particular, showed that CTE concentrators had greater outcomes including higher ACT scores and higher grade point

averages (GPA). Additionally, CTE participants in this study had fewer absences and disciplinary issues as compared to non-CTE participants.

Through latent class analysis, Cho-Baker et al. (2021) found that when classifying courses by one of 16 career clusters rather than using occupational fields, more students participated as CTE concentrators (students with at least three CTE credits). Michaels and Barone (2020) provided insight on new methods for student and curricula classification resulting in more CTE students being identified. Furthermore, they found CTE completers outperformed non-CTE students in student achievement in all academic areas measured by ACT assessments.

Dougherty (2022) found students in Massachusetts with lower SES backgrounds received an even larger benefit than their higher income peers relative to high school completion. Findings in Connecticut showed gains only for males, and no harm to females (Dougherty et al., 2021). Furthermore, girls who did not get into these programs outperformed boys who did not get in. Dougherty et al. (2021) questioned whether it was the success of these relationships or partnerships that led to the girls' performance, and if these relationships developed into mentoring, which may have included follow through and follow-up approaches until students were successfully placed.

Key elements potentially leading to success include expectations and involvement from employer partners to inform curriculum, suggest equipment use techniques, and develop ongoing relationships which create WBL opportunities. Currently, no federal guidelines or playbook exists regarding how to proceed outside of workforce investment boards. There is also no policy regarding transition from secondary to postsecondary

associate degrees and/or certificates (Dougherty et al., 2021). One encouraging example of a private partnerships is found in Tennessee.

- In Tennessee, Nissan and Volkswagen work with several public schools because of their proximity to their production plants. As a result of the partnership, the schools produce high quality, well-trained (and continuously trained) graduates.

Michaels and Barone (2020) conducted a causal-comparative quantitative study using experiential learning and human capital theory (workforce education) frameworks. The study provided evidence that CTE completers had statistically significantly higher ACT scores than student graduates who took one or no CTE courses. Michaels and Barone (2020) showed significant performance differences depending on the CTE program area of study. Students enrolled in information and media technologies or skilled and technical sciences outperformed students enrolled in business and marketing, education, hospitality, and human services. Further research is needed to identify and develop CTE career clusters in high school curricula aligned to PSE academic and career training. Further academic and career training will better prepare students for the workforce.

Using data from the Educational Longitudinal Study of 2002, Cho-Baker et al. (2021) used a data-based exploratory approach to classify individuals into latent groups to identify the most paths. Researchers also explored the impact of CTE students' participation in joint trajectories of school and work on postsecondary experiences. Cho-Baker et al. identified four latent pathways from secondary to postsecondary and trends

associated with pathways, career clusters, and student demographics.

Using CTE concentration program areas as the framework of study, researchers have provided suggestions for further study, namely, piloted tracking of academic achievement and outcomes of CTE students following graduation. Pylvas et al. (2022) used the self-regulated learning (SRL) framework and a qualitative content data analysis in Finnish work-based settings in vocational education and training. Findings included participants' self-reported thoughts and experiences of vocational education and training and indications that work-based education and self-regulated learning strategies increased cognitive engagement and motivation. Pylvas et al. (2022) explored three phases of SRL theory and recommended observational studies going forward in contrast to interviews conducted in this study. Additionally, Qadach et al. (2022) suggested further exploration using the SRL conceptual framework whereby principals would use this learning model to plan, perform, monitor, and self-reflect to shape and develop strategies to monitor and evaluate learning and effectiveness.

Tucker and Hughes (2020) conducted a qualitative study to explore two themes. The first suggested theme was the perceived actions of school administrators and instances in which they do or do not support CTE programs. The second theme suggested was teachers' desire to guide and direct students' postsecondary choices but who do not endorse CTE. The findings indicated that CTE educators continue to fight negative perceptions of CTE programming and many non-CTE educators, even those showing support, exhibited a bias against CTE. Rauscher et al. (2020) conducted a cross-sectional study of CTE construction instructors' attitudes and actions, the safety and health

curriculum, and teaching methods. Researchers found instructors prioritized hands-on training and stayed current with best practices in safety and health. Additionally, researchers noted that instructors needed more training to meaningfully integrate safety and health content into their trade skill courses. Findings also recommended that instructors improve their modeling (scaffolding) of safety and health systems for students. These suggestions may be appropriate for use in studying United States' CTE programs as the country seeks to expand CTE apprenticeships and become more economically competitive with countries who have well-established CTE apprenticeship pipelines.

CTE in Apprenticeship Programs

Increasingly, employers and labor unions have called for an increase in available qualified workers. Apprenticeships combine classroom instruction and on-the-job learning. These programs provide students with opportunities to experience success earning family-sustaining wages. Additionally, apprenticeships include structured training and education opportunities; a career path with potential credits for a local associate or bachelor's degree, certificate of completion from the Apprenticeship Registration Agency, nationally recognized certification fulfilling apprenticeship standards, participation in quality education, and earning while learning. This training and experience have led to increased wages and higher-skilled jobs (Mollica, 2020).

Countries lacking a strong history of vocational education, including the U.S., have a renewed interest in apprenticeships (Voeller, 2023). In 2014, fewer than 5% of young people in the U.S. were training as apprentices as compared to 60% in Germany.

However, students' participation in CTE apprenticeships has grown as registered apprenticeship programs have grown. Policymakers' increased interest in expanding CTE apprenticeship programs led to states passing new legislation, increasing funding and awareness of programs, and expanding programs. The increased attention to apprenticeships along with federal government investment has resulted in more states having apprenticeship initiatives and incentives.

The U.S. Department of Labor's (DOL) Office of Apprenticeship created a data portal to establish a complete and accurate picture of the National Registered Apprenticeship System. It also created Registered Apprenticeship Partners Information Management Data System (RAPIDS) for data management (U.S. Department of Labor, 2023). When surveyed, however, many graduates of nondegree pathways of apprenticeship opportunities shared they were not aware of the available programs. The DOL's (2023) focus has been geared toward creating new requirements for existing programs; increasing funding in the form of tax credits and grants to incentivize hiring apprentices, allowing for apprenticeships to fulfill credits towards graduation and/or transfer, and expanding programs to prevent discrimination and ensure diversity of apprentice programs. State boards play an impactful role in supporting (new and expanding) CTE apprenticeship programs through their implementation plans, per the reauthorized Perkins Act requirements. Boards may notify students and parents of all available internships, externships, apprenticeships, credentialing, certification, licensure, and other work-based learning programs and ensure Workforce Innovation and Opportunity Act (WIOA) funds are provided for out-of-school youth not in school or

working (U.S. Department of Labor, 2023).

Researchers have explored myriad apprenticeship models with varying aims to inform future considerations regarding CTE accessibility, approaches, development, and implementation. Mollica (2020) studied programs serving English language learners (ELL) and identified key elements to sustain and support inclusive apprenticeship models equitably. Kim et al. (2021) evaluated equity in the distribution of CTE opportunities across student subgroups and patterns in academic outcomes of CTE participants, and Voeller (2023) explored degree apprenticeships as a strategy to modernize apprenticeships. Determining how to integrate apprenticeship growth and higher education is another focus given the importance of student transitions from secondary to postsecondary academics and workforce spaces. Furthermore, given the emergence of U.S. apprenticeships findings and insights from researchers can expand the conversation regarding best practices for all CTE programming, specifically CTE apprenticeship programs.

In 2016, the DOL awarded contracts to “equity intermediaries” encouraging expansion of apprenticeship programs for three underrepresented groups: women, people of color, and individuals with disabilities. However, little documentation existed regarding apprenticeship access for immigrant communities or ELL students (Mollica, 2020). Mollica conducted a qualitative study to ascertain; whether ELL learners are participating in apprenticeship pathways, key elements of successful apprenticeship pathways, how to sustain and scale apprenticeship pathways. Furthermore, Mollica inspired by their ELL students’ need to generate income right away, looked at

apprenticeship pathways that would support and prepare students to succeed.

Key findings from pioneering efforts of ESL teachers and their partners called for expanded apprenticeship access for adults (Mollica, 2020). A key element was the use of integrated education and training (IET), which integrates basic skills education, career training, and workplace readiness (p. 4). Characteristics of successful programs as recommended by researchers include elements such as instruction in English, co-teaching of ESL and CTE instruction, instruction on workplace culture, and career training (p. 4). These findings and key characteristics identified from Mollica might be applied to many CTE apprenticeships programs given what current research shows regarding the benefits to students from various demographic groups and students identified as at-risk. These groups of students tend to benefit the most from CTE program exposure, access, type, and number of classes taken (Tucker & Hughes, 2020). The findings are noteworthy as students taking one CTE course above the average (4.9 courses) received additional benefits. Dougherty's (2016) classic research cited several positive outcomes for CTE students. These outcomes include being more likely to: graduate high school (3%), enroll in a two-year college (1%), be employed after high school (2%), and be better compensated (\$28 per quarter).

Integrated education and training (IET) emphasis on integration of language instruction can serve as a model for use with disenfranchised demographic groups. These groups may benefit from integration at nuanced access points, such as learning styles and learning differences as identified by D. A. Kolb (1984, 2015). Students from historically marginalized or low-income families and communities and those receiving special

education supports or identified as in need of socio-emotional or trauma informed support may also benefit from this integration. Apprenticeships can advance economic opportunity in marginalized and disadvantaged communities (Gordon & Schultz, 2020).

Alternative Apprenticeship Pathways

Youth apprenticeships and preapprenticeships are alternative CTE apprenticeship pathways with specific nuances per each pathway. Youth apprenticeships allow students to move directly into industry, attend postsecondary education, and join adult apprenticeships. Apprenticeships provide opportunities for students to explore and determine their level of interest in pursuing a particular industry or pathway. Four criteria exist for these programs: paid on the job learning working with mentors, related classroom instruction, ongoing assessment of established skills and competency standards, and acquisition of an industry credential or credit (Monthey, 2019). Pre-apprenticeships are more advanced than youth apprenticeships and provide secondary, postsecondary and out-of-school youth (ages 16–24, not in school or working), and adults the necessary skills to move into a registered program. These programs address the needs of various stakeholders: students, districts, employers, and sponsors. Programs provide courses that count toward graduation and opportunities for “on-the-job” learning. Students also have opportunities to earn industry credentials and certifications, apply to a registered program, and receive postsecondary credit (Monthey, 2019).

Summary and Conclusions

The review of literature indicated a knowledge gap in high school graduates’ perceptions of their CTE WBL learning experiences. In this chapter, literature was

synthesized explaining the evolution from vo-tech education to CTE. I reviewed past studies on school performance for CTE and non-CTE students. This included assessing student awareness of and access to diverse pathways. Throughout the literature review, I identified and reviewed the two predominant models of CTE programming (traditional and regional) along with the emergence of WBL programs, including apprenticeships. Additionally, I highlighted the emergence of CTE WBL programs, defined and explored KELT, and emphasized the need for further research. In Chapter 3, I explain how I conducted the basic qualitative study using semistructured interviews as the data collection method for examining graduates' perceptions of their CTE WBL experiences. I also include the plan for data analysis. Finally, I discuss issues of trustworthiness.

Chapter 3: Research Method

In this qualitative study, I examined graduates' perceptions of their CTE WBL learning experiences. The purpose of this study was to examine high school graduates' perceptions of their CTE WBL learning experiences. To achieve this study's purpose, I conducted basic qualitative research using semistructured interviews following an interview protocol. In Chapter 3, I describe the research design, study rationale, role as a researcher, and participant recruitment process. I also provide the: data analysis plan, plan used to ensure the trustworthiness of data, and ethical procedures. Major sections of Chapter 3 include the introduction, research design and rationale, methodology, instrumentation, and procedures for recruitment, participation, data collection, and data analysis plan. Chapter 3 also includes how issues of trustworthiness were addressed, and a summary before concluding with a transition to Chapter 4 in which I discuss the results.

Research Design and Rationale

The research questions of the study were:

- RQ 1: What were the learning experiences of graduates who completed CTE WBL programs in high school?
- RQ 2: How did completing a CTE WBL program in high school promote or hinder student academic and/or workforce (labor market) outcomes?

Qualitative research is typically conducted by researchers seeking to gain insight into specific phenomenon and experiences of individuals within that phenomenon. The phenomenon of interest in this study was an in-depth exploration of high school graduates' perceptions of their CTE WBL and workforce experiences. I used a basic

qualitative study research design to gather data on experiences of CTE WBL graduates. Through basic qualitative studies, researchers engage with participants and gather thick, rich descriptions about their perceptions and insights (Lim, 2025). This design was best suited for my study as each participant provided thick, rich accounts of learning and workforce experiences, as applicable. The design protocol included semistructured, open-ended questions and created an avenue for participants to share stories. Other data gathering methods such as surveys and observations were inappropriate for answering the research questions.

Role of the Researcher

My role as a researcher was to conduct interviews and collect and analyze data. I did not include my own thoughts or opinions in any of the responses offered by volunteers (Patton, 2014). However, I did bring my educator lens to interpret the data. I have 22 years of experience as an administrator and 10 years as a teacher, which informed my interpretation of the data. I kept copious notes in my reflexive journal throughout the study to document my research and to assist in identifying and then limiting bias. I wanted to make sure any bias I had regarding student achievement and engagement were kept front and center. I also included notes (memos and jottings) from each interview in the journal.

I recruited volunteers from digital platforms such as LinkedIn and Facebook, postsecondary CTE programs, and CTE student organizations. Each volunteer participant was interviewed on an audio recorded Zoom interview. The interview was transcribed by Zoom AI. My handwritten notes and transcriptions from Zoom were used to ensure

accuracy. I verified transcripts for accuracy by listening to the audio and checking against the transcript several times, making all necessary corrections. Participants received a copy of their individual transcript to complete member checks (Patton, 2014). Member checks included emailing participants the transcript to make sure I captured their intentions correctly.

Methodology

To address the research questions, I completed a basic qualitative study, interviewing 10 high school CTE WBL graduates about their perceptions of their CTE WBL experiences. I aimed to examine how completing the program promoted or hindered graduates' academic and workforce achievement. Although observations and surveys are often used in qualitative studies, these methodologies were not appropriate, given I wanted to learn more about participants' individual experiences.

Participant Selection Criteria

As noted, I recruited 10 participants via LinkedIn, Facebook, postsecondary CTE programs, and CTE organizations. Participants met three criteria: CTE WBL high school graduates, graduated between 2019–2023, and at least 18 years old. To address the research questions, this basic qualitative study included data collected via semistructured interviews on Zoom. I interviewed participants until I attained saturation, which Patton (2014) stated often occurs with eight to 12 participants.

I created a volunteer recruitment flyer about my research study that was uploaded to digital platforms (Patton, 2014). Volunteers were selected from this recruitment effort. Patton suggested potentially identifying a larger sample size initially to ensure data

saturation. Snowballing, asking participants to identify other potential participants, was used to secure an adequate number of participants and data saturation. I also identified potential barriers which might have reduced participant eligibility numbers.

Instrumentation

Data were collected during individual semistructured interviews from volunteer participants using the researcher developed instrument. Interview questions were aligned with the research problem, purpose, and research questions focused on the conceptual frameworks. The interview protocol contained self-developed interview questions organized into categories. My chair and a panel of content experts reviewed the interview questions for validity. The professionals in the field reviewed the questions and provided suggestions regarding clarity and relevance of questions to answer the research questions. All interviews were audio recorded using Zoom and word dictation and transcribed with Zoom AI. I reviewed these sources no fewer than three times and corrected errors and misspellings. I used member checks to confirm accuracy and to assist with credibility and trustworthiness (Ahmed, 2024).

Procedures for Recruitment, Participation, and Data Collection

I sought volunteers from digital platforms such as LinkedIn and Facebook and CTE schools and organizations. In my role, I collected data using semistructured interviews, providing a chance for volunteers to select a convenient time. Interviews took place on Zoom and were recorded and transcribed for member checking. Per my interview protocol, participants were informed verbally and in writing that they could opt out of the interview process at any time. Snowballing was an additional recruitment

strategy utilized for recruitment.

Data Analysis Plan

Upon receiving IRB approval for my study and my data collection (09-05-24-0129564), I conducted a data analysis to address the research questions. I analyzed data using thematic analysis. The qualitative analysis depended on my understanding of the researched subject matter and relied on thick descriptions from interviews (Holloway & Brown, 2016).

The following steps guided data analysis (Creswell & Poth, 2018; Patton, 2014). I first analyzed data for emerging concepts and significant words by hand and then coded and categorized concepts based on keywords in the research questions, identifying commonalities and differences. I then completed axial coding and placed codes into categories. As I reviewed the codes and categories, I reviewed initial themes and defined the themes by examining data to identify topics, ideas, and patterns of meaning that came up repeatedly and were more complex concepts relating back to the research question. Finally, I identified and assigned a priori codes based on the conceptual framework. Using inductive analysis, I determined themes which were defined and labeled. I then analyzed the emergent themes and discussed the results as related to the KELT and the research questions.

Issues of Trustworthiness

As qualitative studies have grown in prevalence, researcher trustworthiness is paramount (Patton, 2014). Researcher trustworthiness encompasses credibility, transferability, dependability, and confirmability (Ahmed, 2024). Credibility (internal

validity) refers to participants in the study and was established by ensuring participants met eligibility requirements for the study and were able to answer research questions and added to data saturation. Member checks and transcript validation increased credibility. Transferability (external validity) describes how research findings can be applied to other fields/studies throughout each stage of the research. Rich, descriptive accounts were written about the setting, participants, interview protocol, interview questions, and data analysis. Dependability refers to the strength of data collected. I utilized reflexive journaling, which increases dependability. Reflexive journaling provided an audit trail, including recordings and transcriptions of interviews. I present findings in a concise manner to increase replicability to produce the same findings. Confirmability addresses the connection between data and results. Confirmability issues were reduced by reviewing interview questions with my chair and a panel of experts to make sure questions were appropriate for meeting my research aim.

Ethical Procedures

I completed all required institutional review board documents and received approval prior to beginning recruiting participants and collecting data. I also completed the Collaborative Institutional Training Initiative's human subject's protection training module and followed the ethical principles of respect. According to Laryeafio and Ogbewe (2023), ethical considerations are to protect participants' privacy and confidentiality. To ensure participants' privacy and confidentiality, alphanumeric coding was used instead of participant and institution names.

Summary

In this chapter, I restated the purpose of the study, described my research design, discussed my role as researcher, the methodology, participant selection and recruitment, and research questions. I provided a detailed data analysis plan, including data collection plan and coding process. I reviewed issues of trustworthiness and ethical procedures for the study. In Chapter 4, I present the results and analysis of the study.

Chapter 4: Results

The purpose of this basic qualitative study was to explore graduates' perceptions of their high school CTE WBL experiences. The central research question was "What were the learning experiences of graduates who completed CTE WBL programs in high school?" The second research question was "How did completing a CTE WBL program in high school promote as well as hinder student academic and workforce achievement?"

This chapter is organized into five sections. The first section, the setting, provides context for each participant's circumstances, with implications for interpreting results. In this section, I list demographic information to identify trends regarding who participated in the study. In the second section, I provide a detailed description of how the data were collected. The third section includes a description of the data analysis process: how the data were broken down, examined, coded, categorized, identified as themes, and interpreted to answer the central research questions. In the fourth section, I explain the results. In this section, I present the data thematically to support the findings, along with discrepant cases. The fifth section outlines evidence of trustworthiness through a thorough description of strategies used to ensure credibility, transferability, dependability, and confirmability. The chapter concludes with a summary of key findings and implications. Participants' responses provide a glimpse into high school graduates' perceptions of CTE WBL experiences. These findings, implications, and responses inform the transition to Chapter 5.

Setting

All research was conducted in a virtual setting using Zoom for interviews and

audio recording. All participants completed a CTE WBL program within the continental United States. I conducted interviews between January and April 2025 in private settings and off camera to allow for candid conversations. I selected Zoom because it is widely available and provides multiple recording and saving methods: audio recording, video recording, saving to computer, saving in the cloud, VTT transcriptions, and close caption saving, along with a summary of the meeting. I located participants through social media and word-of-mouth recommendations from participants' professors who were aware of the study. Participants willingly shared perceptions during interviews.

Demographics

All participants in this basic qualitative study successfully graduated from a high school CTE WBL program between 2019–2023. This success inclusion criteria (Patton, 2014) was selected to identify positive CTE WBL examples to provide insights regarding successful habits and practices of students, CTE programs, and WBL sites. I selected participants who graduated from diverse CTE pathways (Cashdollar, 2023) with varied WBL experiences. Myriad high school configurations, CTE pathways, and WBL opportunities highlight a plethora of options available within CTE. One participant graduated in 2019, two graduated in 2020, six graduated in 2021, and one graduated in 2022. Nine of the 10 participants graduated from a traditional high school program and one participated in a dual program; none participated in a regional program. Participation time in CTE WBL programs ranged from 4 months to 3 years, with two participants beginning their program in 10th grade, five beginning in 11th grade, and three starting their program in 12th grade. One of the participants started in 11th grade and was the

only participant from a dual program. Two participants focused on business management and marketing, three completed agricultural programs, and there was one participant for each following pathways: health science, plumbing, automotive technology, culinary arts, and public service. This variation amongst participants highlights the vast design possibilities of CTE WBL program configurations. This includes types of high school, CTE pathways, WBL opportunities, and coordination of CTE WBL efforts. I kept a log of all physical and virtual outreach along with referrals made through these contacts. It took 4 months, several physical and online meetings and visits, and numerous outreach attempts to find volunteers who met the inclusion criteria. I began hearing from interested participants in December 2024. With continued outreach, additional participants expressed interest in January 2025.

Nine participants were in a traditional high school setting. Participant 7, the only participant enrolled in a dual program, reported having to meet eligibility requirements before being accepted to participate. CTE dual programs allow high school students to earn college credits and usually require a minimum grade point average (GPA). No participants were in a regional high school setting. Regional programs are high school programs that provide CTE pathways for students in a specific region. Participant 1 was the only participant who knew a CTE WBL program was being developed, per work with the teacher creating the program. The familiarity with this teacher and having a parent who worked with CTE students increased the desire for P1 to join the schools' CTE WBL program when it started. Only Participants 2 and 5 began the program in the 10th grade.

In March 2020, the COVID-19 global pandemic caused schools throughout the United States to move to virtual learning. Virtual learning, social distancing, and increased safety protocols were implemented to support learning and keep everyone safe. The full impact of school closures and reduced in-person learning and hands-on experiences is not yet known; however, all participants, except Participant 6, spoke of significant instructional limitations and personal and family experiences that negatively impacted them. Only Participant 5 contracted COVID during that time period and was hospitalized. Participants completed their CTE WBL experience between 2019–2023. Many of their insights were subject to their memory and my ability to probe their memory appropriately through questioning. Table 1 shows the participants' CTE demographic information.

Table 1

Participants by Graduation Year

Graduation Year	Participant	Grade CTE Began	CTE Pathway	WBL Experience	Program
2019	P4	12	Urban Agriculture	Farm	Traditional
2020	P1	12	Marketing/Media	Store; Library	Traditional
2020	P2	10	Business Management	Restaurant	Traditional
2021	P3	11	Health Science	Hospital	Traditional
2021	P5	10	Plumbing/Construction	Plumbing	Traditional
2021	P7	11	Automotive Technology	Automotive	Traditional
2021	P8	11	Culinary Arts	Culinary Arts	Dual
2021	P9	11	Agriculture	Farm	Traditional
2021	P10	11	Public Service	Legal Proceedings	Traditional
2022	P6	12	Agriculture	Farm	Traditional

Once participants expressed interest in taking part in the study, they received a

confirmation email, which included an overview of the interview process, the consent form, and a sample of the interview questions (see Appendix A) to be asked. All participants provided consent and agreed to adhere to and proceed according to interview process guidelines Zoom's recording feature provides multiple methods to review data. I used audio, captions, chat, and AI transcription components. The AI feature provided recordings and transcribed meetings. Additionally, I took handwritten notes, which, along with recordings, I saved to my password-protected Google drive. Recordings aided in verifying data accuracy during transcription and analysis (Patton, 2014). I listened to recorded interviews, reviewed transcripts, and checked my handwritten notes to correct and ensure the accuracy of each transcripts.

Participant recruitment began on September 9, 2024, 4 days after IRB approval, with recruitment emails being sent to LinkedIn, Facebook, and post-secondary CTE WBL programs. The data collection process took 4 months. It included sending initial emails to potential participants and post-secondary academic institutions; sending a second request, as needed; conducting interviews, transcribing interviews for participants to review; and receiving feedback on the transcripts from the participants. I resubmitted my request to IRB two additional times to include social media outreach; and, if needed, to get permission to speak with participants face to face at schools or student fairs. I visited three postsecondary schools, shared my flyer with leaders of recognized national, state, and local CTE organizations and requested information on the process for posting and sharing my flyer. I had several online meetings with various directors and administrators gaining insight about their work and the feasibility of sharing my

recruitment flyer with CTE WBL graduates and conducting interviews (see Appendix A) on their premises, if participants were found. I also posted the recruitment flyer with specific organizations on LinkedIn and Facebook.

Two interviews were rescheduled. After a third was cancelled, I identified a replacement participant. Two interviewees were ineligible (one graduated in 2018 and another did not participate in a WBL program), two participants dropped off the call and did not reply when asked to rejoin and reschedule, three scheduled participants did not show, and two participants had low computer volume and did not rejoin the call or respond to requests to reschedule.

Data Analysis

Data analysis began after each interview. I read and reviewed my handwritten notes, listened to the Zoom audio recording, and cross-checked using the Zoom AI transcription. I labeled each transcript with participant number and date of interview. I began reviewing participants' responses using inductive coding; 140 codes appeared after the first round of coding. I created a spreadsheet to identify repeating codes and overlapping ideas resulting in 38 codes. These codes were then grouped by similarity of concept resulting in three categories. These categories were analyzed and used to define themes. Themes were derived included bridging classroom and workplace learning, WBL catalyzing growth in resilience, critical thinking, and motivation, and WBL providing portable skills and credentials for workforce entry.

Codes

I transcribed each interview verbatim, listening to the audio, reading, and rereading each transcript for accuracy and clarity. The first round of coding was conducted line by line and question by question for each participant. I identified participants' responses and took note of personal bias. During the second round of coding, I continued organizing and making sense of the data. I streamlined, sorted, and organized the first round data (again referring to my journal, transcripts and audio recordings). This resulted in 38 codes. Next, I removed all questions associated with participants' responses, looking only at participant responses and existing codes. I merged duplicate and similar codes, repeating the process several times arriving at 11 codes from 10 interviews: experiential learning, experiential application, pedagogical competence, college and career readiness, self-directed motivation, student success habits, critical thinking, partnerships, occupational skills, certification standards, and career pathway.

Code 1 experiential learning refers to having classroom and WBL learning experiences, which met at least one of KELT's four pillars, that is, concrete learning (CE), reflective observation (RO), active experimentation (AE), or abstract conceptualization (AC). Participant 9 cited learning how to test soil PH, useful in collecting and taking soil samples, during the internship on a farm, stating, "I took classes in agrobiological and plant and soil sciences and environmental resource management. These classes gave me both the scientific and practical knowledge in agriculture." Participant 10 described activities such as preparing and conducting mock trials in their

classroom setting: “One time we prepared and conducted a mock trial from start to finish with laws involving evidence, investigating, court appearances and arguments. It was intense but also rewarding.” These concrete experiences provided participants with hands-on and minds-on opportunities to enhance their theoretical learning with practice.

Code 2 experiential application applies to real-world application of experiential learning. Participant 6 noted, “I was actually in charge of feeding and handling the animals.” Participant 9 said, “At school I learned how to test soil Ph levels in the classroom. So then, during my internship I used those exact techniques which I was taught in the classroom.” These experiences demonstrate participants’ learning being reinforced and strengthened.

Code 3 pedagogical competence captures participants identification of effective instructional teaching and learning practices. Participant 1 shared examples of staff members’ ability to differentiate curriculum finding an alternative internship more aligned with Participant 1’s CTE goals and needs. Participant 4 discussed instances of scaffolding and gradual release: “They showed an example and I followed up, down to the making of a business plan example. . . . It was a nice experience for me because I followed a guide that I was being shown.” Participant 6 referred to supportive learning in class and on the WBL site: “In class, and also I had (received) more information . . . on the farm through my mentor.” Although participants did not use pedagogical competency language when describing CTE WBL experiences, descriptions reflected learning through collaboration, hands-on learning, and problem solving.

Code 4 college and career readiness refers to practical skills and habits of mind

participants learned or became aware of during CTE WBL that prepared them for postsecondary spaces. Participant 4 described managing increased demands: “In my final year . . . the demand of coursework was kind of much . . . compared to what I had in lower grades.” Other participants discussed problem solving, collaboration, and critical thinking as skills acquired through CTE WBL experiences. Participant 7 said,

In my high school, I would say I did more of like time management. . . . I learned that effective communication is actually very important. We were actually asked to repair a faulty brake system, . . . teamwork in collaboration and come up with it within a few days come up with a solution.

The acquisition of technical skills and soft skills equipped participants with confidence and skills needed to thrive in postsecondary academics and in the workforce.

Code 5 self-directed motivation references the ability of participants to use self-motivation and directed learning to increase their knowledge base. Participant 7 stated, “I was able to see people in the field already doing well. It’s gives me that sense of motivation and, um, I would say that drove my focus and commitment.” Participant 8 shared,

In comparison to my traditional school experience my participation in the work-based learning program was significantly more engaging and motivating. In 9th and 10th grade, I found the traditional school experience to be somewhat lacking in real-world application. However, when I joined the program in 11th and 12th grade, I experienced a max shift in my motivation and focus, enhanced online learning experience and industry partnerships in the program made me feel more

connected.

While several participants noted having focus and motivation prior to joining a CTE WBL program, many pointed out exposure to CTE WBL helped with focus, fostered career path selection, and developed resolve to persevere through personal, academic, and vocational difficulties.

Code 6 Student Success Habits of students delineates habits students felt supported their progress. Participant 4 highlighting teamwork and collaboration habits said, “So even though it was tedious, my academic performance . . . and experiences of teamwork and collaboration improved my sense in what we are actually doing.”

Participant 5 recounted growth with having a positive mindset over time:

It’s something that I haven’t experienced before... it was kind of challenging that, okay, this is something I haven’t done before and I have to have a successful attitude... So it’s much easier the 2nd (year) and after 3 years I already had knowledge of what I’m doing compared to when you know I just started.

Participants pointed to teamwork, collaboration, and having a positive attitude or orientation as a few of the success habits that led to positive outcomes for them.

Code 7 Critical Thinking refers to participants ability to delve deeper, question assumptions, and explore various perspectives. Participant 4 noted, “I successfully worked with team members and cultivated and harvested a plot of land . . . developing a business plan also . . . that it could even be used for a community supported agricultural programs.” Participant 7 demonstrated this when discussing synthesizing learning experiences in real-world applications to solve problems the group encountered the first

time stating, “Critical thinking in general to approach problems from different angles. . . . I was able to combine them together and make it work at the program.” Having opportunities to work in teams, resolve issues, and explore scenarios provided participants with practice thinking through problems, collaborating, and strategizing. All hallmarks of critical thinking.

Code 8 Partnerships referred to the coordination between CTE and WBL programs, some established through student initiative, others coordinated between the CTE and WBL personnel. Participant 5 expressed appreciation for the instructional and relational support received from being mentored and described the process of working with them: “I have my own personal mentor and every other student also have their own personal mentors” Participant 8 said, “While at the second site, I worked on an industry partnership project where we developed a menu for a local restaurant. The project allowed me to apply my knowledge of menu cooking, nutrition, and food safety.” Participant 9 noted some challenges with the partnerships: “There was an issue with transportation for some of us who were from low economic backgrounds but also transporting ourselves to our places of internship.” The partnerships between CTE and WBL organizations bridged adolescent secondary classroom experiences with adult roles in professional settings at WBL sites and in postsecondary academic institutions and workforce spaces.

Code 9 Occupational Skills is characterized by WBL technical and soft skills acquired by students during CTE WBL experiences. Participant 1 said,

I’m starting to see the correlation between the deadlines that was in school and the

deadlines that are with the CTE apprenticeship. . . . Sometimes people are not as understanding as they were in school. And they just want the job done. They don't care what's going on with your personal life. . . . That was eye-opening for me and being docked for pay if I was late or didn't have a good excuse of why I couldn't come in. . . . They only give you like two or three absences and then you're dropped from the program or . . . had a very good reason.

Participant 8 said,

In both the classroom and work-based learning settings hands-on learning experience and industry partnerships in the CTE program helped me to develop particular skills. . . . I was able to take the skills and knowledge I gained in the classroom and apply them in the workplace learning setting.

Participant 9 described more learning activities that increased skills: "We start by collecting the soil sample. We had a standard procedure we followed. . . . We take them to the laboratories and we check the temperature using the time limit." Participants were appreciative and found value in acquiring employability skills which included personal mindsets and success habits, such as dependability, awareness, collaboration, professional attitude and time management.

Code 10 Certification Standards refers to participants meeting or passing national industry exams upon completion of CTE programs as evidence of acquiring a specific skill set. Participants expressed confidence in meeting standards to acquire a certificate.

Participant 5 described the process:

I can see the final moments (year) are easier compared to the initial movements. .

. . . But I haven't gotten the certification for the first of course. I did that was the plumbing technology. I haven't got that certification; I have to work about 1700 hours.

Code 11 Career Pathway denotes participants' feelings about selecting a future career based on CTE WBL experiences. Participant 1 said,

Even today I am searching for marketing positions and looking into marketing classes in college. . . . So having that foundation...you can try out a different thing which might drive you in a different direction and give you that experience of this might be what I want to do.

Participant 6 shared, "During my 9th grade, I wasn't really focused. . . . But after the training and the learning and everything, I was more, more career focused."

Participant 5 noted, "Currently, I still work at [Name omitted]. I work with my mentor. My mentor is always there to guide me. He's normally my official mentor but I also take him as my informal mentor." Participant 8 described increased engagement and motivation, stating, "I was more focused on my career goals. I'm more motivated to learn and apply these skills and knowledge I was getting in the program." However, Participant 10 highlighted an area of needed extra support sharing:

Most students, after completing their CTE program, are left with nothing, unable to proceed with your life and there's not any support from the program once they finish a program on how to help them grow and fix them in life so they tend not to do well after the program.

Providing CTE WBL participants increased individual and organizational mentoring and

support could be one approach for ensuring and promoting student success in postsecondary spaces.

Categories

I interpreted participants' perceptions and organized codes into categories. The 11 codes were sorted into categories based on similarities of the codes. I referred back to the transcripts and generated three themes ensuring accurate interpretations. The resulting categories were Individual Learning, Transformation, and Transitions. Table 2 shows how codes were grouped into categories.

The Individual Learning category focuses on student benefits resulting from curriculum design and instruction, experiential learning, and experiential application. Individual learning also encompasses experiential learning and application occurring at WBL sites. Staff competence and scaffolding in these areas resulted in improved student learning and strengthened students college and/or career readiness. Curriculum design encompasses the scope and sequence of content, including classroom instruction and practice. Curriculum and instructional learning opportunities fostered career and college readiness through collaborative projects which encouraged teamwork with other students, emphasizing prioritization, time management, critical thinking, and problem solving.

Table 2*Categories and Codes*

Categories	Codes
Individual Learning	Experiential Learning Experiential Application Pedagogical Competence College/Career Readiness
Transformation	Self-Directed Motivation Student Success Habits Critical Thinking
Transition	Partnerships Occupational Skills Certification Standards Career Pathway

The Transformation category highlight success habits such as self-directed motivation and critical thinking. These success habits supported and guided student transformation. Participants attributed engagement in authentic real-world experiences at WBL sites as valuable mechanisms for developing and refining success habits. The Transition category highlights how CTE WBL partnerships and acquiring industry certifications prepared students for postsecondary academics and workforce spaces. These partnerships and industry certifications also helped students acquire occupational skills and pursue specific career pathways. As noted, greater CTE WBL alignment and postsecondary support would further promote student success.

Themes

Categories were then grouped into themes (see Table 3). After moving codes into categories, I reviewed each category and identified overarching themes based on similarities. In category of Individual Learning, I grouped experiential learning, experiential application, pedagogical competence, and college and career readiness to

form Theme 1.

Table 3

Themes, Categories, and Codes

Themes	Categories	Codes
Recent CTE WBL graduates found instructional design translated into applied learning that bridged the classroom and workplace.	Individual Learning	Experiential Learning Experiential Application Pedagogical Competence College & Career Readiness
Recent CTE WBL graduates found their work-based learning experiences catalyzed growth in resilience, critical thinking, and motivation.	Transformation	Student Success Habits Critical Thinking Self-Directed Motivation
Recent CTE WBL graduates found work-based learning equipped them with portable skills and credentials for workforce entry.	Transition	Occupational Skills Partnerships Certification Standards Career Pathway

Theme 1: Recent CTE WBL Graduates Found Instructional Design Translated Into Applied Learning That Bridged Classroom and Workplace (Individual Learning)

Findings suggest that recent CTE WBL graduates found instructional design translated into applied learning that bridged classroom and workplace. Participants identified many practices that supported them and their learning in classrooms and workplaces. The use of hands-on and minds-on real-classroom WBL activities fostered students' interest and helped them develop soft and technical skills. Many participants described instances of moving from theory to practical application. P8 shared, "We have menu planning and nutrition. This course taught me how to plan and create menus for different occasions . . . and advanced culinary . . . allowed me to refine my cooking skills and explore specialized cuisines." P9 emphasized, "I completed a capstone project on soil health in drought conditions and presented it at the CTE showcase and I [earned] college

credits.”

Theme 2: Recent CTE WBL Graduates Found their CTE WBL Experiences Catalyzed Growth in Resilience, Critical Thinking, and Motivation (Transformation)

The road from secondary academia to postsecondary academia or workforce can be a confusing and lonely road for adolescents. Theme 2 emerged from participants’ insights regarding growth personally, academically, and vocationally. Participants shared that recent CTE WBL experiences were transformative. P2, reflecting on a strength of CTE WBL participation said, “Just based on my determination . . . and trying to strive creating a positive impact, being a better person because the program I’m enrolling in is just trying to make sure that I be a better person.” P3 appreciative of the experience shared, “I had most especially a good experience. . . . Be involved in some kind of clinical evaluation whereby I put my dream into action. It was really a nice experience of what I really dreamed to be.” Participant 3 also shared, “I just had a few problems because I kind of had to manage my part-time work schedule with the program. So trying to balance life . . . was kind of tough for me . . . the emotional demand, I need to find money.” Participant 6 said, “During my 9th grade I wasn’t really focused. . . when this opportunity came. . . I just gave it a try. But after the training and the learning and everything, I was more career focused. And I really knew what I wanted at that time and where I was heading to.”

Theme 3: Recent CTE WBL Graduates Found WBL Equipped Them With Portable Skills and Credentials for Workforce Entry (Transition)

The third theme reflects participants’ feelings transitioning from secondary to

postsecondary. Participants stated that they had the occupational and critical thinking skills needed for postsecondary transition. Additionally, participants noted their success habits and career path awareness better equipped them for the future. Participant 8 stated, “I was more focused on my career goals. I’m more motivated to learn and apply these skills and knowledge I was getting in the program.” Participant 10 said, “In my 9th and 10th grade so I wasn’t really sure where I was headed . . . but once I joined the CTE program in my 11th grade . . . my motivation and focus increased. I felt more purposeful, and also confident in what I was going to do.” Participants overwhelmingly lamented over the cost of COVID-19 on postsecondary plans during their transition from secondary to postsecondary. Costs ranged from having to recover from personal illness to taking care of loved ones, to altering moving and school attendance plans.

Table 4 displays participants’ postsecondary pathways. Nine out of 10 participants reported joining the workforce after high school. Two of those nine students also attended a community college. One participant attended community college solely.

Table 4*Participants' Postsecondary Pathways*

Graduation Year	Participant	Grade CTE Began	CTE Pathway	WBL Experience	Postsecondary Pathway
2019	P4	12	Urban Agriculture	Farm	Workforce
2020	P1	12	Marketing/Media	Store & Library	Community College
2020	P2	10	Business Management	Restaurant	Workforce (Self-employed)
2021	P3	11	Health Science	Hospital	Workforce
2021	P5	10	Plumbing/Construction	Plumbing	Workforce
2021	P7	10	Automotive Technology	Automotive	Workforce
2021	P8	11	Culinary Arts	Culinary Arts	Workforce
2021	P9	11	Agriculture	Farm	Workforce & Community College
2021	P10	11	Public Service	Legal Proceedings	Workforce & Community College
2022	P6	12	Agriculture	Farm	Workforce

Discrepant Cases

Participant 8 shared their CTE WBL program was fully coordinated by the school. As a result of the schools' partnerships with various locations, Participant 8 had the opportunity to serve in five roles. These included serving as team leader and mentoring younger students during senior year. This study did not investigate student-to-student (peer) mentoring. This was the only time a participant mentioned mentoring a student and may be worthy of further study.

Evidence of Trustworthiness

Throughout this study, I maintained adherence to the research process to ensure trustworthiness through credibility, transferability, dependability, and confirmability (Ahmed, 2024). I aligned research problem, purpose, and questions. Using a qualitative approach, I explored participants' perceptions of their CTE WBL experiences given the

nuances and plethora of CTE WBL programming options available to them.

Programming options included the type of high school CTE model, the CTE pathways, and the specifics of the CTE WBL coordination.

To ensure trustworthiness, I established credibility (internal validity) using a comprehensive approach for each component. Participants were identified and selected after a rigorous recruitment process and after meeting the selection criteria. With IRB approval, I adjusted the recruitment process to allow for face-to-face participant interviews and postsecondary site interviews to find more volunteers. These adjustments, however, proved unnecessary. I provided thick descriptions of the research context, participants, and data to provide a thorough understanding of the research phenomenon and ensure transferability. I also ensured credibility through member checking. Each participant received a copy of the interview transcript to review for accuracy. Notes were taken and reviewed to identify any bias or personal opinions.

Transferability (external validity) was achieved by providing a thick description of the research method and findings. I provided a detailed overview of the context, participants, setting, procedures and data. All participants were at least 18 years old and graduated from a CTE WBL program between 2019–2023. Participants were knowledge experts of their career cluster, CTE program, and WBL site. Findings from this study may be applied to other secondary CTE WBL sites throughout the U.S.

Dependability was ensured through the audit trail maintained throughout the process. I documented each step of the research process: data collection, data analysis, and interpretation for verification by others for replication. Ongoing data analysis began

after each interview and continued for months while I reviewed, pre-coded, categorized, and identified themes in transcripts. This documentation assures others that I conducted the research process with integrity and rigor.

Confirmability was achieved by following the IRB approved data collection plan for the study. My committee members reviewed the research questions and the semistructured interview questions for clarity and unbiased wording. I reviewed my notes and reflected on data at each stage of the study to identify and limit personal bias (Miles et al., 2014).

Results

Research Question 1: What Were the Learning Experiences of Graduates Who Completed CTE WBL Programs in High School?

Findings showed all participants had positive hands-on and minds-on experiences and developed soft and technical skills that supported successful secondary academic and workforce experiences. Participants were thus prepared for post-secondary opportunities. These findings confirm Theme 1: Recent CTE WBL graduates found instructional design translated into applied learning that bridged classroom and workplace (Individual Learning). Learning to farm, working on cars, developing marketing materials were some of the activities participants identified that enriched CTE WBL programs and provided participants with opportunities to collaborate and use critical thinking to solve problems. All participants expressed appreciation for both the learning experiences and the opportunities provided in classrooms and at WBL sites.

Research Question 2: How did Completing a CTE WBL Program in High School Promote as Well as Hinder Student Academic and Workforce Achievement?

Low high school student engagement and poor motivation are continued concerns for parents, educators, business owners, and states. Business owners continue to identify a limited workforce and low workforce preparedness as significant issues. Participants noted the exposure to workforce expectations along with practical learning opportunities fostered confidence, increased focus and motivation, raised career awareness, and provided potential career pathways. These findings support Theme 2: Recent CTE WBL graduates found their CTE WBL experiences catalyzed growth in resilience, critical thinking, and motivation (Transformation). Additionally, participants' experiences in CTE WBL programs outline a mechanism for increasing and maintaining student interest in secondary schools and significantly supporting student transition to postsecondary spaces. Thus, the findings were confirmed for Theme 3: Recent CTE WBL graduates found WBL equipped them with portable skills and credentials for workforce entry (Transition).

Several participants identified challenges to their postsecondary transition. Those issues included feeling overwhelmed and learning how to manage time, debt, and schedules. Participants did not see these challenges as barriers; rather, these challenges were viewed as learning opportunities that provided a glimpse of the real world and prepared participants to face adult expectations. Ultimately, participants reported learning to manage feelings, prioritize tasks, ask for help, and overcome setbacks.

Summary

The aim of this study was to better understand high school graduates' perceptions of their CTE WBL experiences. Two research questions guided the study: What were the learning experiences of graduates who completed CTE WBL programs in high school, and How did completing a CTE WBL program in high school promote as well as hinder student academic and workforce achievement. I designed interview questions to answer research questions and explore high school graduates' perceptions of learning experiences. I asked follow-up questions and followed the track of participants' answers to ensure the interview was relevant to participants (Miles et al., 2014) and fully explored participants' thinking. Using the KELT, I sought to understand graduates' perceptions of CTE WBL experiences. Findings from this study may increase researchers' awareness of the ongoing need for further research in CTE WBL and increase practitioners' knowledge and awareness of the need for continued support and coordination of CTE and WBL spaces.

Through participant interviews, three themes emerged: Theme 1: Recent CTE WBL graduates found instructional design translated into applied learning that bridged classroom and workplace (Individual Learning). Theme 2: Recent CTE WBL graduates found their CTE WBL experiences catalyzed growth in resilience, critical thinking, and motivation (Transformation). Theme 3: Recent CTE WBL graduates found WBL equipped them with portable skills and credentials for workforce entry (Transition). These themes highlight personal and program practices, success habits, and mindsets of students, staff, students, and business owners that aided students in successful completion

of CTE WBL programs as evidenced by graduation.

Chapter 5 provides an interpretation of the findings, relative to current literature and the conceptual framework, discussion of the limitations of the study, and recommendations for future research. I discuss implications of findings in terms of the conceptual framework and offer recommendations to further promote student success. I also offer insights with regard to student, staff, school practices, business owners, and institutional partnerships, which may be used to create and expand current transformative opportunities for students. Potential implications for positive social change are noted, along with key conclusions related to the identified themes.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this basic qualitative study was to explore high school graduates' perceptions of their CTE WBL experiences. This study is important because little is known about high school graduates' perceptions of their high school CTE WBL experiences. Many high school students are not thriving in and after high school. CTE WBL programs have created an additional pathway promoting student success. Exploring perceptions of students who successfully graduated from a high school CTE WBL program using the KELT framework provided the researcher with rich descriptions of participants' learning experiences. Moreover, this study provided a foundation for looking at CTE WBL through the KELT's learning cycle. Additional research may provide guidance for increasing the number of student participants and creating multiple pathways for student success.

Key findings emerged around three themes during data analysis: applied learning that bridged the classroom and workplace; CTE WBL catalyzing growth in resilience, critical thinking, and motivation; and WBL equipping participants with portable skills and credentials for workforce entry. These themes showcase supports and barriers (considered by participants as challenges) faced by graduates of high school CTE WBL programs. The themes also provide a rationale regarding the need for additional research to further explore additional effective individual and institutional CTE WBL practices.

Interpretation of the Findings

I organize this section according to the literature review and conceptual framework defined in Chapter 2. I list and review three identified themes: (a) recent CTE

WBL graduates found instructional design translated into applied learning that bridged classroom and workplace (Individual Learning); (b) recent CTE WBL graduates found their CTE WBL experiences catalyzed growth in resilience, critical thinking, and motivation (Transformation); and (c) recent CTE WBL graduates found WBL equipped them with portable skills and credentials for workforce entry (Transition). In the discussion, I compare my findings against those of other researchers, interpret findings in relation to the study's conceptual framework, and describe how the results relate to the framework.

Interpretations of Results in Terms of the Literature

Theme 1: Recent CTE WBL Graduates Found Instructional Design Translated Into Applied Learning That Bridged Classroom and Workplace

The theme of instructional design translates into applied learning that bridges classroom and workplace supports research. Prior research has shown students who participate in career academies have increased potential to increase positive outcomes in school attendance, academic course-taking, graduation rates, and dropout rates (Shoemaker, 2025). Key findings of this study were consistent with this research.

All participants reported either developing or maintaining motivation upon joining a CTE WBL program. All participants joined the workforce, attended a postsecondary institution, or both. 100% of participants completed high school. Moreover, 90% (nine out of 10) joined the workforce and 30% (three out of 10) attended community college (two of the three participants are counted in the workforce percentage). These findings are not consistent with literature, in that researchers

(Dougherty, 2022) point to secondary students attending college rather than joining the workforce. However, comparing salaries of CTE WBL graduates who joined the workforce to non-CTE graduates might yield findings consistent with research which shows CTE graduates received the higher salary.

Theme 2: Transformation: Recent CTE WBL Graduates Found Their CTE WBL Experiences Catalyzed Growth in Resilience, Critical Thinking, and Motivation

This theme outlines various mindsets and success habits participants identified that supported and fostered transformative growth. With continuous learning opportunities (D. A. Kolb, 2017) and exposure, learners engage in a learning style (experiencing, imagining, reflecting, analyzing, thinking, deciding, acting, initiating, and balancing) to inform and solidify learning. These experiential classroom learning and WBL opportunities served not only to develop, maintain, or increase participant motivation, these opportunities resulted in the acquisition of skills and competencies needed for ongoing and future success.

All participants emphasized positive outcomes associated with CTE WBL experiential learning and application including improvement in learning, thinking, and communication in the classroom, workplace, and postsecondary spaces. Participants identified practical learning activities that extended theoretical learning. All participants were appreciative of the opportunity to apply classroom learning and practices to real-world situations at WBL sites. Collaborating with other students enriched participants' learning as they completed team projects discussing, reflecting, and analyzing as assigned tasks and projects were completed. Projects gave students opportunities to strengthen and

refine technical skills and simultaneously develop soft skills. Participants noted communicating with fellow students to problem solve, prioritize, and think critically boosted self-confidence and competence. Additionally, communicating with mentors and advisors was reported as helping participants succeed and provided a resource of support, caring, and guidance. Furthermore, participants reported using and applying these skills and competencies in postsecondary spaces.

Theme 3: Transition: Recent CTE WBL Graduates Found WBL Equipped Them With Portable Skills and Credentials for Workforce Entry

Dougherty et al. (2021) and Dougherty (2022) showed CTE can smooth the transition to college and the workforce. As previously noted, all participants in this study joined the workforce, attended community college, or both. Although research shows that despite more skilled workers being needed, students are continuing to attend college rather than join the workforce. Key findings of this study were not consistent with this research. Only one of the 10 (10%) participants attended a postsecondary institution solely, and three out of the 10 (30%) attended a postsecondary institution (two of the three attended school while working).

Recent CTE WBL graduates shared that their CTE WBL experiences motivated them in and beyond high school. Additionally, all participants reflected on and enumerated personal and institutional success habits that were pivotal to developing or furthering their technical and soft skills. Thus, participants developed increased confidence and willingness to network and pursue postsecondary opportunities. Participants reported altering their postsecondary plans as they rebounded from the

COVID-19 global pandemic. All participants were positive and hopeful about achieving their goals.

Interpretations of Results in Terms of the Conceptual Framework

KELT, focusing on theoretical aspects of experiential learning, served as the conceptual framework for interpreting the findings. Experiential learning encompasses the sequence of activities that enhances learning. D. A. Kolb (1984, 2015) emphasized continuous learning that occurs throughout four stages or pillars. Using strategies and approaches of the learning cycle, D. A. Kolb (1984, 2015) further explained that learners move throughout the learning cycle of the four pillars to create meaning from concrete experiences, reflective observation, abstract conceptualization, and active experimentation. Intentional hands-on program and curriculum design fosters increased student engagement and learning. The following themes were derived from this conceptual framework. I explore the relevance to findings.

Theme 1: Individual Learning

Recent CTE WBL graduates found instructional design translated into applied learning that bridged classroom and workplace. Using the KELT as the framework for interpretation, Theme 1 is consistent with the KELT's emphasis on continuous learning throughout the experiential learning cycle which consists of four pillars. D. A. Kolb (1984) emphasized that learning could occur at any point of the four pillars: concrete experiences (CE), reflective observation (RO), active experimentation (AE), and abstract conceptualization (AC).

Participants noted that the concrete experiences (CE; concrete experiences),

discovery phase of learning, increased learning in the classroom and at WBL sites. Participants explained how reflection and reviewing learning (RO; reflective observation), specifically when applying learning in real-world situations strengthened learning. Participants outlined gaps in learning (AE; active experimentation) that surfaced as they completed projects and tasks. These projects and tasks often required more practice and greater strategy such as problem solving in teams or receiving coaching from mentors or advisors. Each participant clearly reflected on learning experiences and identified where and how growth was needed (AC; abstract conceptualization) to continue learning even into postsecondary academia and workforce spaces. Participants' ability to think through learning outcomes demonstrates how the KELT can be used to strengthen overall learning, both in the short-term and long-term.

Theme 2: Transformation

Recent CTE WBL graduates found their CTE WBL experiences catalyzed growth in resilience, critical thinking, and motivation. The KELT framework can be used in schools and workplaces. Theme 2 highlights participants' ability to express and think through learning using the lens of the four pillars of the KELT. As participants reflected (RO) on concrete learning experiences (CE), they identified gaps (AE) in learning and outlined next steps (AC) for growth. These insights expanded participants' learning foundations personally, academically and vocationally.

Participants shared that experiential learning experiences aided in personal transformation and encouraged perseverance. Each participant outlined ways in which experiential learning and application was used effectively and reduced learning gaps.

Practical learning prepared participants to transition into postsecondary spaces with better developed skills, mindsets, and success habits, such as problem solving, critical thinking, and networking. Individual learning resulted in participant transformation and supported participants' postsecondary transitions.

Theme 3: Transition

Recent CTE WBL graduates found WBL equipped them with portable skills and credentials for workforce entry. The third theme reflect participants' awareness level of their preparedness for postsecondary opportunities in academia and the workforce (AC). Participants reflected on how CTE WBL learning experiences and experiential application helped them identify areas in need of growth. Despite participants' plans being altered as a result of COVID-19, all reported that their acquired skills and connections increased their focus and clarity about potential career pathways. These skills fostered confidence as participants strengthened their competencies and connections. Participants also reported creating alternative plans, as needed. Therefore, findings are consistent with the KELT and highlight how specific experiential learning experiences increase learning and application (CE), reflection (RO) regarding learning gaps (AE), and discovery of learners' areas in need of growth (AC). This study provides insights into supports and barriers (challenges) promoting learning experiences in secondary and postsecondary CTE WBL spaces.

Limitations of the Study

Though participants provided thick, rich descriptions of their CTE WBL experiences, this research has limitations. Recruitment by social media, professional

networks, postsecondary schools, and Career and Technical Student Organizations (CTSO) might have implications for ensuring validity and trustworthiness of participants' experiences. Identifying high school graduates who met the inclusion criteria took several months, changes in inclusion criteria, multiple recruitment strategies, and continuous outreach. Additionally, the vastness of secondary CTE pathways and WBL design could be thought of as a limitation. Narrowing the research focus to one type of high school (traditional, dual, or regional), identifying a specific CTE pathway (or career cluster), and selecting a specific WBL focus (nursing, STEM, agriculture, automotive) might yield more sophisticated and in-depth insights and questions.

Working with IRB, before and throughout the data collection process, resulted in timely feedback and guidance and minimized the impact of the limitations. I recognized and reduced research oversight to increase trustworthiness. Findings support current CTE literature and provide another lens to reflect on how to intentionally use experiential learning frameworks in CTE WBL programs to maximize and promote learning outcomes.

Recommendations

The burgeoning interest and focus on CTE has resulted in increased studies regarding effective CTE implementation, programming, and expansion. Previous research focused on student completion of programs and its impact on student achievement. Student completion of high school was not a barrier in this study as all participants were high school graduates. Future researchers should consider exploring why some students begin a CTE program but do not complete it. Alternatively,

researchers could explore students who were in dual programs for high school through college.

As a result of the dearth of research on overall CTE programming, there are numerous opportunities for further CTE research. As an educator, I identified three primary areas of interest in particular: educator and WBL provider perspectives of CTE and CTE WBL learning; administrator reflections on CTE and CTE WBL staff preparedness to deliver quality programs; and student preparation, access, and participation in CTE pathways. Exploring other stakeholders' perspectives, such as teachers or administrators, can yield greater understanding regarding how to support and encourage student learning, while business owners perspectives might yield insight into how learning can foster greater vocational application.

Implications

Findings from this basic qualitative study examining high school graduates' perspectives of their CTE WBL experiences include several potential implications for positive social change in the educational system, workforce, and the U.S. economy. At the individual level, participation in these programs supported and reinforced individual learning, providing opportunities for greater ease of transition, and fostering growth and transformation. The data provided from findings have implications for positive social change. Participants acquired soft and technical skills, mindsets, and success habits, such as focus, motivation, and mindsets that prepared them for postsecondary transitions. Participants asserted that experiential learning better prepared them for life after secondary school. Additionally, participants benefited from positive results: in secondary

schools, having increased engagement and motivation; and in postsecondary spaces, using acquired skills in school and/or at the workplace. It appears, therefore, that CTE participants can make a positive contribution to society by having a higher level of workforce preparedness.

On the organizational level, I recommend additional research be conducted on how to expand and increase the number of CTE and CTE WBL programs. Participants found they successfully completed their programs and were eager for postsecondary academic and workforce opportunities. However, there was no clear pathway as a part of their secondary experience, with the exception of Participant 8 who attended a dual program. Further research study of successful secondary to postsecondary pathway transition and alignment is needed. As this study was being completed, it was clear the scope of CTE and, specifically, CTE WBL is very broad. Looking at learning experiences in these spaces added an additional layer of complexity.

The need for continued research, support, and expansion of successful CTE programs at the societal and policy level is justified due to mandates for improved student achievement, urgent calls from employers, and Perkins V requirements regarding CTE effectiveness. Current findings can lead to further research investigating best approaches for preparing students for secondary and postsecondary education and workforce opportunities. At the practical level, findings from the study may provide practitioners with an informed understanding of ways to better guide families, educators, and employers.

Methodologically, one area to explore includes investigating specific aspects of

the KELT that promote student learning. Such research can look at specific activities through the KELT's continuous learning cycle. Researchers might explore how to maximize student learning through the intentional use of the four pillars when planning and designing learning experiences.

Conclusion

I concluded that recent CTE WBL graduates found that the CTE instructional design translated into applied learning that bridged classroom and workplace. While many high schools students have low engagement and motivation, with many opting to eventually drop out, recent CTE WBL graduates found their CTE WBL experiences catalyzed growth in resilience, critical thinking, and motivation. Through hands-on and minds-on learning and real-world application, recent CTE WBL graduates found that WBL equipped them with portable skills and credentials for workforce entry.

This study added to an existing body of CTE knowledge highlighting that CTE WBL programs serve to encourage and equip high school CTE WBL students with the necessary tools for secondary and postsecondary success. Given myriad CTE pathways and a plethora of methods used to coordinate with WBL options, identifying effective programs in districts and states is paramount. Establishing fidelity in practice, process, and in partnership coordination serves to increase overall success in the field. Ultimately, students benefit from learning spaces that yield more learned, informed and productive individuals ready to positively contribute to themselves, their families, and their national and global communities. Accomplishing this requires continued CTE research, perhaps, exploring alignment of terms, protocols, and policies; examining effective CTE and WBL

teaching and learning strategies; and increasing students awareness and preparation for CTE programs.

References

- Ahmed, S. K. (2024). The pillars of trustworthiness in qualitative research. *Journal of Medicine, Surgery, and Public Health*, 2, Article 100051.
<https://doi.org/10.1016/j.glmedi.2024.100051>
- Allen, S. J. (2020). On the cutting edge or the chopping block? Fostering a digital mindset and tech literacy in business management education. *Journal of Management Education*, 44(3), 362–393.
<https://doi.org/10.1177/1052562920903077>
- Almalag, H. M., Saja, M., Abouzaid, H. H., Aljuffali, L., Alzamil, H., Almater, L., Alothman, L., & Alzamel, F. (2022). Evaluation of a multidisciplinary extracurricular event using Kolb’s experiential learning theory: A qualitative study. *Journal of Multidisciplinary Healthcare*, 15, 2957–2967.
<https://doi.org/10.2147/JMDH.S389932>
- Awadelkarim, A. A. (2021). An analysis and insight into the effectiveness of scaffolding: EFL instructors’ perceptions and attitudes. *Journal of Language and Linguistic Studies*, 17(2), 828–841. <https://doi.org/10.52462/jlls.58>
- Balducci, B. (2022). Experiential learning: Investigating lecturers’ perceptions of authentic learner activities. *Scope: Contemporary Research Topics (Learning & Teaching)*, 30–39. <https://doi.org/10.34074/scop.4011008>
- Boggu, A. T. (2021). The potential of Kolb’s experiential learning cycle on long-term knowledge retention. In *Proceedings of the 20th Oman International ELT Conference* (pp. 129–142). Oman International ELT Conference.

- Carruthers, C. K., Dougherty, S., Goldring, T., Kreisman, D., Theobald, R., Urban, C., & Villero, J. (2024). Career and technical education alignment across five states. *Aera Open*, 10(1), 1-19. <https://doi.org/10.1177/23328584241276504>
- Cashdollar, S. (2023). Educational stakeholder sensemaking on preparing CTE students for sub-baccalaureate pathways. *Educational Policy*, 37(6), 1700–1734. <https://doi.org/10.1177/08959048221120277>
- Cho-Baker, S., Olivera-Aguilar, M., & Fishtein, D. (2021). Using latent class analysis to link career and technical education in adolescence and work and school transitions in young adulthood. *Career and Technical Education Research*, 46(2), 59–79. <https://doi.org/10.5328/CTER46.2.59>
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.
- Creswell, J. W., & Poth, C. N. (2024). *Qualitative inquiry and research design: Choosing among five approaches* (5th ed.). SAGE Publications.
- Devi, M. K. K., & Thendral, M. S. (2023). Using Kolb’s experiential learning theory to improve student learning in theory courses. *Journal of Engineering Education Transformations*, 37(1), 70–81. <https://doi.org/10.16920/jeet/2023/v37i1/23133>
- Dougherty, S. M. (2016). *Career and technical education in high school: Does it improve student outcomes?* ERIC. <https://files.eric.ed.gov/fulltext/ED570132.pdf>
- Dougherty, S. M. (2022). New directions for CTE research: Opportunities and priorities. *Career and Technical Education Research*, 47(3), 28–38. <https://doi.org/10.5328/CTER47.3.28>

- Dougherty, S. M., Kamin, S. K., & Klein, S. (2021). Improving measurement in career and technical education research. *Career and Technical Education Research*, 46(3), 37–57. <https://doi.org/10.5328/CTER46.3.37>
- Edgerton, A. K. (2022). *Strengthening Career and Technical Education for the 21st Century Act (Perkins V): A primer* (CRS Report No. R47071). Congressional Research Service. <https://eric.ed.gov/?id=ED622636>
- Education Commission of the States. (2020). *Pre-apprentice model*. https://www.pakeys.org/wp-content/uploads/2021/05/ECE-Pre-Apprenticeship-Report_4.16.21-1.pdf
- Fletcher, E. C., & Dumford, A. D. (2021). Preparing students to be college and career ready: The effect of career academy participation on student engagement in college and career preparatory activities. *Career and Technical Education Research*, 46(2), 23–41. <https://doi.org/10.5328/CTER46.2.23>
- Gordon, H. R., & Schultz, D. (2020). *The history and growth of career and technical education in America*. Waveland Press.
- Gordon, S. P. (2022). Integrating the experiential learning cycle with educational supervision. *Journal of Educational Supervision*, 5(3), Article 1. <https://doi.org/10.31045/jes.5.3.1>
- Guskey, T. A. (2013). Defining student achievement. In J. Hattie & E. M. Anderman (Eds.), *International guide to student achievement* (pp. 3–6). Routledge.

- Haviland, S., & Robbins, S. (2021). Career and technical education as a conduit for skilled technical careers: A targeted research review and framework for future research. *ETS Research Report Series*, 1-42. <https://doi.org/10.1002/ets2.12318>
- Hendricks, A., Myran, S., Owings, W. A., Katsioloudis, P., & Kaplan, L. S. (2021). Rethinking the U.S. postsecondary education model: The relationship between earning career and technical industry credentials and the Virginia economy. *Journal of Education Finance*, 47(2), 111–129. <https://eric.ed.gov/?id=EJ1380989>
- Hoachlander, G. (2021). *Building a system of college and career pathways in New Mexico*. Learning Policy Institute. <https://learningpolicyinstitute.org/product/new-mexico-college-career-pathways-report>
- Holloway, I., & Brown, L. (2016). *Essentials of a qualitative doctorate*. Routledge.
- Howard, K. E., Howard, N. R., Havard, D. D., & Wall, A. F. (2022). Career and Technical Education’s Unequal Dividends for High School Students: The Stratification of a New Generation. *Urban Education*, 59(5), 1586-1618. <https://doi.org/10.1177/00420859211073890>
- Katz, B., & Elliott, D. (2020). *CareerWise: Case study of a youth apprenticeship intermediary*. Urban Institute. https://www.urban.org/sites/default/files/publication/102373/careerwise-case-study-of-a-youth-apprenticeship-intermediary_0.pdf
- Keily, T. (2021). *Secondary career and technical education activity in 2021*. Education Commission of the States. <https://files.eric.ed.gov/fulltext/ED615929.pdf>

- Kim, E. H., Flack, C. B., Parham, K., & Wohlstetter, P. (2021). Equity in secondary career and technical education in the United States: A theoretical framework and systematic literature review. *Review of Educational Research, 91*(3), 356–396.
<https://doi.org/10.3102/0034654321995243>
- Kobes, D., & Nayak, S. (2025, July). *Aligning youth apprenticeship and career and technical education: Present connections and future opportunities*. Urban Institute. https://www.bollettinoadapt.it/wp-content/uploads/2025/09/Aligning_Youth_Apprenticeship_and_Career_and_Technical_Education.pdf
- Kolb, A. Y., & Kolb, D. A. (2009). The learning way: Meta-cognitive aspects of experiential learning. *Simulation & Gaming, 40*(3), 297–327.
<https://doi.org/10.1177/1046878108325713>
- Kolb, A. Y., & Kolb, D. A. (2018). Eight important things to know about the experiential learning cycle. *Australian Educational Leader, 40*(3), 8–14.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice Hall.
- Kolb, D. A. (2015). *Experiential learning: Experience as the source of learning and development* (2nd ed.). Pearson Education.
- Laryeafio, M. N., & Ogbewe, O. C. (2023). Ethical consideration dilemma: Systematic review of ethics in qualitative data collection through interviews. *Journal of Ethics in Entrepreneurship and Technology, 3*(2), 94–110.
<https://doi.org/10.1108/JEET-09-2022-0014>

- Lim, W. M. (2025). What is qualitative research? An overview and guidelines. *Australasian Marketing Journal*, 33(2), 199–229.
<https://doi.org/10.1177/14413582241264619>
- Michaels, C., & Barone, D. (2020). Career and technical education: Academic achievement as measured by national testing. *Career and Technical Education Research*, 45(3), 3–19. <https://doi.org/10.5328/cter45.3.3>
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). SAGE Publications.
- Mollica, J. (2020, Spring). Opening doors to apprenticeship for English language learners. *COABE Journal: The Resource for Adult Education*, 9(1), 13–24.
<https://eric.ed.gov/?id=EJ1252887>
- Monthey, W. (2019). The critical role of apprenticeship programs. *State Education Standard*, 19(3), 30–46.
https://nasbe.nyc3.digitaloceanspaces.com/2019/09/Monthey_September-2019-Standard.pdf
- Patton, M. Q. (2015). *Qualitative research and evaluation methods* (4th ed.). SAGE Publications.
- Perry, A. (2019, September). *Making the most of Perkins V*. National Association of State Boards of Education. <https://files.eric.ed.gov/fulltext/EJ1229625.pdf>
- Pylvas, L., Nokelainen, P., & Rintala, H. (2022). Vocational students' perceptions of self-regulated learning in work-based VET. *Vocations and Learning*, 15(2), 241–259.
<https://doi.org/10.1007/s12186-022-09286-8>

- Qadach, M., Schechter, C., & Da'as, R. (2022). School principal's self-regulated learning: A conceptual framework of learning-centered leadership. *International Journal of Educational Management*, 36(5), 812–827.
<https://doi.org/10.1108/IJEM-02-2021-0072>
- Rauscher, K., Bush, D., Chang, C., & Myers, D. (2020). Occupational safety and health education in post-secondary career and technical education construction programs. *Career & Technical Education Research*, 45(3), 63–81.
<https://doi.org/10.5328/cter45.3.63>
- Rojewski, J. W. (2022). An historical look at the future of career and technical education and research. *Career and Technical Education Research*, 47(3), 3–16.
<https://doi.org/10.5328/cter47.3.3>
- Ryder, M., & Downs, C. (2022). Rethinking reflective practice: John Boyd's OODA loop as an alternative to Kolb. *The International Journal of Management Education*, 20(3), 1–12. <https://doi.org/10.1016/j.ijme.2022.100703>
- Schenck, J., & Cruickshank, J. (2015). Evolving Kolb: Experiential education in the age of neuroscience. *Journal of Experiential Education*, 38(1), 78–95.
<https://doi.org/10.1177/1053825914547153>
- Schmidtke, C. (2017). Commonly used theories in CTE research: Toward a core theory base for CTE. *Career & Technical Education Research*, 42(3), 193–217.
<https://doi.org/10.5328/cter42.3.193>
- Shoemaker, M. (2025). The Impact of Career & Technical Education Concentration on the Success of High School Students. *Journal of Career and Technical Education*,

40(1), 1-20. <https://doi.org/10.21061/jcte.487>

Tucker, S. L., & Hughes, A. J. (2020). Endorsement of career and technical education: Phenomena influencing core-subject teacher perceptions. *Journal of Technology Education*, 31(2), 40–55. <http://doi.org/10.21061/jte.v31i2.a.3>

U.S. Department of Labor. (2023). *Data and statistics*. Apprenticeship USA. <https://www.apprenticeship.gov/data-and-statistics>

Voeller, J. (2023). Degree apprenticeships as a strategy to modernize apprenticeships: Rationale, current development in the U.S., and a conceptual framework. *International Journal for Research in Vocational Education and Training*, 10(2), 220–238. <https://doi.org/10.13152/IJRVET.10.2.4>

Appendix A: Interview Questions

General Questions

1. What type of CTE program did you participate in? What career pathway/courses did you take?
2. What achievements/successes did you have during the program?
3. What problems/limitations did you have while in the program?
4. What do you see as strengths and weaknesses of your CTE WBL program?
5. What, if anything, would you do differently regarding your CTE WBL program?
6. What advice do you have for students, school personnel, and/or employers?

Kolb Experiential Learning Theory (KELT) Questions

1. Please describe your CTE WBL learning experiences. [Concrete Experience, per KELT.]
2. Please share your reflections on your CTE WBL participation in comparison to your traditional school experience. [Reflective Observation, per KELT.]
3. Please describe how your learning experiences were applied in your CTE WBL setting. [Active Experimentation, per KELT.]

Follow up: Can you describe your performance and motivation in your CTE WBL program as compared to your performance and motivation in the traditional program, if applicable?

4. Please describe how your learning experiences were applied to your post-secondary academic and/or work experience, if applicable. [Abstract Conceptualization, per KELT.]