Examining Business and Industry Involvement in Alabama CTE Programs, Teacher Satisfaction with the Partnership, and Perceived Barriers

by

Shashauna Bloomfield

A dissertation submitted to the Graduate Faculty of

Auburn University

in partial fulfillment of the

requirements for the Degree of

Doctor of Philosophy

Auburn, Alabama

August 5, 2023

Approved by:

Dr. Elisha Wohleb, Clinical Professor, Business/Marketing Education, Career and Technical Education

Dr. Leane Barnes Skinner, Professor, Business/Marketing Education, Career and Technical Education

Dr. Chih-hsuan Wang, Professor, Educational Psychology, Educational Research, Measurement, and Assessment

Dr. Chadwick A. Springer, Assistant Clinical Professor, Business/Marketing Education, Career and Technical Education

Abstract

Alabama's economy is currently trending towards a crisis due to the lack of skilled talent to fill the technical positions in the growing labor market. It is no secret that Career and Technical Education (CTE) participants are linked to many positive educational and labor market outcomes. However, little information is available about the involvement of business and industry partners in Alabama CTE programs as they work together to meet the community's needs effectively. This quantitative research study was designed to determine how involved business and industry leaders are in Alabama CTE programs, examine teacher satisfaction with business and industry leaders and identify barriers that affect the relationship. The time has come to meet and exceed Perkins V's criteria, not only for the benefit of the economy but also for the students' futures, by ensuring that these CTE programs effectively meet the demands of Alabama's growing industries.

A descriptive analysis and One-way ANOVA were used to summarize, organize, and describe the data using descriptive statistics, including frequencies, means, and standard deviations. Respondents were Alabama CTE teachers. They represented the nationally recognized 16 career clusters. Using the survey instrument developed by the researcher, 102 responses were recorded. Most participants reported having a graduate or professional degree, 1-5 years of industry experience, teaching for 0-6 years, and being predominantly female. The survey data was analyzed using Statistical Package for Social Science (SPSS).

Most respondents are associated with the Business Management & Administration Program. The finance cluster shows having the highest business and industry involvement. CTE teachers with 16-20 years of industry experience have the highest satisfaction level, and teachers

with more industry experience have indicated having fewer perceived barriers to building and maintaining relationships with business and industry partners.

Acknowledgments

I am deeply grateful to thank my committee chair, Dr. Elisha Wohleb, for her guidance and encouragement. I would not have accomplished my goals without the assistance and encouragement she so willingly provided. I would also like to thank my remaining committee members, Dr. Leane Skinner, Dr. Chih-hsuan Wang, and Dr. Chadwick A. Springer. Each member played an integral part in getting me to the finish line. I will always be grateful for the investment these individuals made in me.

I want to thank God for blessing me with the opportunity to achieve this goal, never giving up, and putting one foot in front of the other when days turn into sleepless nights. Thank God for the strength to continue. I want to thank my wonderful husband, Alrick Bloomfield. He has been my biggest supporter and rock through all the ups and downs. I could not have done this without his love, support, and endless encouragement. I would also like to thank my baby girl, Alanna Grace, who constantly inspired me to finish and make her proud. It would be impossible for me to overstate the importance of my family and friends, who have encouraged, supported, and understood me through the process. Thank you.

Table of Contents

List of Abbreviations

ANOVA	Analysis of Variance
ALSDE	Alabama State Department of Education
CTE	Career and Technical Education
NDEA	National Defense Education Act
SPSS	Statistical Package for Social Science
STWOA	School to Work Opportunities Act of 1994
IV	Independent Variable
DV	Dependent Variable

Chapter 1: Nature of the Problem

Introduction

Society plays a vital role in educating teenagers and young adults so they can lead productive and prosperous lives. The Career and Technical Education (CTE) programs in Alabama are continually being improved to keep up with modern society's demands. Education and workforce development were on the agenda when Alabama Governor Kay Ivey announced a system for developing the workforce that should enable individuals to enter in-demand job tracks at any point in their lives by providing continuous educational paths (Jhons, 2017). Considering this, laying a solid educational groundwork for producing and preserving a robust labor force is essential. Collaboration between many stakeholders and educational institutions is critical to achieving one's goals and realizing one's potential.

The idea of partnership is not new to CTE; in the 1920s, prominent business community members made substantial contributions to the growth of the vocational education movement (Katz & Pawloswki, 2014). The ability of schools to meet the current and future requirements of businesses and industries depends on a successful partnership. Nevertheless, students are expected to prepare for a future that does not exist and may or may not require the skills they are learning. Teachers have a responsibility to remain current with the requirements and expectations of employers to adequately prepare students to satisfy those demands while also preparing students for a life in which they may provide for themselves. As a result, leaders in business, industry, and schools need to collaborate to design a beneficial strategy for all involved parties. The nature of the interaction that exists between business and industry executives and CTE educators will be the primary focus of this research. This study aims to evaluate the level of

involvement business and industry leaders have in Alabama's CTE programs, teachers' satisfaction with the partnerships between businesses and industries, and the perceived barriers.

Background

In light of the growing uncertainty of the American economy and the severe lack of available trained personnel, there has been increased interest in Career and Technical Education (CTE). The primary goal of CTE, formerly known as vocational education, has always been to train skilled laborers for a mechanized economy. Today, CTE is all about preparing students for the real world, helping them acquire the theoretical and applied academic knowledge and skills necessary to succeed in the workforce while preparing them for success in their chosen fields (Friedel, 2011). Notable high school graduates with vocational training often find high-paying, skilled professions in their area (Rosen et al., 2018). According to a data sheet published in the February 2021 issue of Alabama Career and Technical Education by the Association for Career Technical Education, the state's economy has suffered a skills shortage for three consecutive years. CTE is responsible for aiding the effort of providing the best-qualified workers for the job. The goal of training workers for skilled jobs requires the skill sets of both business and industry leaders and educators.

Alabama has built a business climate enabling businesses and industries to thrive and innovate. However, a report by Brad Harper (2020) indicated that Alabama is facing a job crisis as skilled workers disappear. Even though 58% of occupations in Alabama require skills training, just 48% of the workforce have the necessary skill set to succeed in these specialized positions (Hyslop, 2022). The scarcity of qualified workers is forecast to increase significantly by 2025 in Alabama's booming economy. With the current skills gap status and the forecast for an increase, it is essential to examine what makes CTE great. The CTE partnership with

businesses and industry must be reviewed to ensure that Alabama's growing number of businesses and industries have access to the most qualified workers. The Perkins V Act, also known as the Strengthening Career and Technical Education for the 21st Century Act, requires states to provide academic and CTE programs that lead to either four-year degrees or credentials recognized by employers (Dean et al., 2020). One of the most significant modifications introduced by Perkins V is the requirement for locally eligible beneficiaries to complete a local needs assessment every two years to ensure that their CTE programs align with the local and state demands and regional workforces. In addition, local, state, and regional educational organizations are encouraged to complete a needs assessment as part of the federal funding laws for CTE (Career and Technical Education, 2016).

CTE partnerships with business and industry leaders must be evaluated comprehensively to ensure the success of today's students. The Alabama State Department of Education (ALSDE) collaborates with various interested parties to provide rigorous academic requirements for each program (Amrein-Beardsley, 2022). However, no regional assessment in each program area has been publicly available. Therefore, studying the connections between CTE educators in Alabama, local businesses, and industry leaders is critical. Are classroom teachers happy with their collaborations, and what problems have arisen due to these pairings? How CTE teachers perceived business and industry involvement in their CTE programs?

Theoretical Framework

Dr. Charles A. Prosser was dubbed the "father of vocational education" for his contributions to the field (Prosser Career Education Center, 2021, p. 7). He criticized conventional school curriculums for only focusing on academics and college preparation. Dr. Prosser lobbied for federal monies in 1911 to create social and economic opportunities for

vocational schools and activities and was credited with drafting the Smith-Hughes Act of 1917 (Prosser, 2013). The Smith Hughes Act contains many ideas and proposals Dr. Prosser contributed to the National Commission on Aid to Vocational Education in 1914 (Prosser & Quigley, 1949). He formulated and published 16 theorems on how vocational education programs should be run as the foundation for a sound and effective vocational program in 1940 (Moore, 2003). Although vocational education has changed, the foundation on which it was built has proven to be valuable. Seven of Dr. Prosser's theorems directly relate to the purpose of this study on business and industry leaders' involvement in CTE programs and teacher relationships with business and industry leaders (Table 1).

Table 1

Seven of Prosser's Theorems on Vocational Education

Theorems	Focus	Description
Theorem One	Work Environment	It is efficient for vocational education to be taught in an environment like the workplace, where a learner will eventually work.
Theorem Two	Industry Standards	Practical vocational training is only possible when the training jobs are carried out using the same tools, machines, and operations as in the occupation.
Theorem Nine	Industry Needs	Vocational education must recognize conditions and prepare individuals to meet the market's demands.

Theorem Ten	Real World Jobs	Learners can establish process habits more effectively when the training is based on actual work instead of exercises or fictitious tasks.
Theorem Eleven	Partnership	The only reliable content source for specialized training is the experience of masters in the field.
Theorem Twelve	Aligning curriculum	All occupations contain a body of content unique to their field, general teaching will not help develop a competent worker.
Theorem Fifteen	Adaptability	A flexible and fluid administration will make vocational education more efficient in proportion to its elasticity and fluidity rather than rigidity and standardization.

Note. Seven of sixteen Theorems Dr. Prosser's published on Vocational Education.

One and ***two*** of Dr. Prosser's theorems (2013) strongly suggested that CTE programs should replicate the work environment students are preparing to enter and use the same tools and equipment they would use in the workplace to perform meaningful task work. Therefore, the skills taught should be in line with what industrial employers expect, and learners should be able to transition smoothly from training to employment. As part of the school, business, and industry partnerships, Griggs et al. (2017) found that students exposed to a laboratory similar to the intended workplaces transitioned easier and quickly into the workforce. The students were exposed to professionals who worked in their planned fields. Students expressed the essential skills gained by regularly interacting with business and industry professionals. The partnerships provided a link to the real world that motivated students who might otherwise feel marginalized (Griggs et al., 2017). Through regular involvement of the business and industry partners in the

CTE programs, students were able to experience firsthand what is expected of them in the real world and work alongside people they aspire to be. To accomplish this task, Alabama CTE teachers must engage with businesses and industries in their area to design a classroom that replicates the work environment.

Dr. Prosser contended that educators with industry experience are better equipped to prepare students for the demands of today's employers. ***Theorem nine*** stressed that vocational education programs must prepare individuals for the workplace (Moore, 2003). To solve economic problems, employers and teachers must work closely to address local needs, eventually expanding nationally (Prosser, 2013). In CTE high schools, students learn in classrooms, workshops, laboratories, studios, teaching factories, and industries (Maknun & Rahmawati, 2022). Maknun and Rahmawati (2022) agreed with Dr. Prosser's theorem nine that the success of business and industry-based learning depends on the experience of teachers relevant to their professional competence. Requiring industry-based knowledge needs to be a part of the recruiting and training for new and inexperienced teachers in CTE. Industrial internships were shown to have incredible benefits for teachers and be highly effective. Internships can provide industrial work experience, recognized competency certifications, occupational competence based on real-world work, and cultivate work cultures through work experience. Hence, having a relationship with the CTE teacher and ensuring the teacher has the industry knowledge and is constantly developing in that area of expertise is key to preparing students for entry-level jobs upon leaving the program.

Prosser's (2013) ***theorem ten*** emphasized the importance of instructors' knowledge of industry and business requirements in providing students with appropriate training. According to Watters et al. (2013), a partnership between business and industry is essential in maintaining

current knowledge of today's in-demand, ever-changing workforce requirements. Watters et al. (2013) and Maknun and Rahmawati (2022) had similar findings to theorem ten of Dr. Prosser. They all suggested that instructors' knowledge of the industry is vital in providing training that meets the needs of the business and industry, which is a direct result of a relationship.

Theorem eleven stresses the importance of a vibrant community, employer involvement, and professional advisory committee involvement in curriculum development relevant to contemporary employment environments (Prosser, 2013). School-industry partnerships are conceived in such a way that they provide complementary "capabilities and competencies" to schools in areas where schools alone cannot educate students (Watters et al., 2013, p. 3). A successful CTE program requires detailed course content developed by instructors, businesses, and industries that address the community's needs (Prosser, 2013). MacQueen et al. (2001) also emphasized the need for community involvement in schools as they should share the same objectives. The curriculum must reflect the community's needs and have community members' input in planning and implementing those needs.

A key component of the CTE curriculum is how closely it aligns with the job, as in ***theorem twelve***. According to Dr. Prosser (2013), general teaching will not help develop a competent worker when the subjects are irrelevant to the situation. As a result, he concluded that curriculums and labor markets must be aligned. Labor markets are constantly changing. To meet the ever-changing needs of students and the economy, CTE educators and administrators must be flexible and adaptable, as highlighted in Dr. Prosser's ***theorem fifteen***. CTE teachers must constantly work to improve their programs and adapt to changing employment conditions. Meeder and Pawloswki and (2020), agreed with Dr. Prosser that school officials need to partner with businesses and industry to align the curriculum to meet those goals. The ability of schools

to meet the current and future requirements of businesses and industries depends on a successful partnership.

Investigating whether Alabama's CTE programs follow Dr. Prosser's proven theorems are crucial. Alabama's economy is experiencing a crisis due to the lack of skilled talent to fill the open positions in the growing labor market. According to Joe Morton, president of the Business Education Alliance of Alabama, "Alabama is on pace to have a shortage of close to 200,000 highly skilled workers by 2025-2026 if nothing changes in the workforce development pipelines" (Harper, 2020, p.1). There is a need for business and industry leaders, as well as CTE teachers, to work closely together to tackle current and future economic problems in the local area and nationally. Investigating whether business and industry leaders and CTE educators are working together to mitigate the foreseeable problem is necessary.

Statement of the Problem

There is a growing concern that high school graduates are unprepared for the working world. Studies by John Hopkins University and the University of Arizona reported that two-fifths of high school graduates are unprepared for traditional colleges and careers (De Vise, 2011). Brandon Busteed (2019) said that only 35% of youth aged 15-17 had summer employment, down dramatically from 58% in 1978. The great resignation of 2021, an economic consequence of the covid-19 pandemic, has shed light on the volatility of the United States economy (Allman, 2021). Record numbers of people are quitting their jobs or seeking a career change leaving millions of unfilled employments; it is a startling glimpse of a system that will fail shortly. Therefore, now is the time to look closely at the education system. Considering the forecast for the upcoming years, Busteed (2019) urged immediate attention regarding the decrease in

employment among youth. Despite being held accountable for how students learn and what they know, schools cannot accomplish this task by themselves.

Alabama's economy currently suffers from a shortage of skilled workers to fill the growing number of jobs. A report by Joe Morton, president of the Business Education Alliance of Alabama, indicated that Alabama is experiencing a skills gap and there, will be a shortage of close to 200,000 highly skilled workers by 2025-2026 if the pipelines for workforce development remain unchanged. The governor of Alabama, Kay Ivey, urged workforce development to implement a plan that will result in 500,000 skilled workers by 2025. The need for employability skills is urgent. Therefore, making information available about how business and industry leaders are involved in CTE programs and helping develop a curriculum that aligns with current and projected labor market needs and the local economy is timely.

Schools, businesses, and industries must collaborate in preparing students for a successful college or workforce transition. Many schools, however, have little connection to the local community, especially with business and industry leaders (Pawloswki & Meeder, 2012). Several positive educational and career outcomes have been linked to CTE participation, and CTE has a long-standing record of contributing to the economy's growth. With the current economic state, CTE programs partnering with business and industry leaders are imperative because of the proven results in helping students succeed beyond the classroom. Unfortunately, no information is available on how business and industry leaders are involved in Alabama CTE programs, teacher satisfaction with their business and industry relationships, or the perceived barriers that may prevent a successful partnership.

Bui and Miller (2015) reported, "The typical American only lives 18 miles away from mom" (p. 1). Undoubtedly, Alabama CTE programs should establish partnerships with local

businesses and industry leaders to link real-world job opportunities in places where countless young people will live. With young adults becoming less mobile and settling closer to home or remaining at home, partnering CTE programs with local business and industry leaders are crucial for personal and economic success. Examining the involvement of business and industry leaders in CTE programs, teacher satisfaction with the relationship with business and industry leaders, and showcasing the barriers that affect the relationship are timely topics to consider. The business and industry involvement will also be determined based on the perceived obstacles documented by teachers. The result will be readily available that can be used in future planning, as it provides vital information that can impact partnerships, relationships, students' success, and economic growth. Therefore, the problem is that no available information about the involvement of business and industry in Alabama CTE programs as teachers prepare students for the growing demands of Alabama's booming economy and nationwide. Although CTE teachers prepare students for life after graduation, their satisfaction with how business and industry leaders operate in their programs remains unknown, as are the barriers involved in establishing and maintaining these relationships.

Significance of the Study

The mission of CTE is to provide students with life skills and prepare them for a workforce in which business and industry are confident (Brand & Browning, 2013). To accomplish this task effectively, educators, companies and industry leaders, and other community agencies should collaborate in preparing students for practical and relevant skills needed in the workforce to create a sustainable life for themselves and their families. The most recent Perkins reauthorization, signed by former President Donald Trump in June 2018, includes a competitive grant program to "improve and modernize career and technical education and align

workforce skills with labor market needs" (Sublett, 2019, p. 5). The governor of Alabama, Kay Ivey, urged workforce development to implement a plan that will result in 500,000 skilled workers by 2025. The need for employability skills is urgent. Holzer (2017) reasoned that the current labor shortages are caused in part by a "skills gap," in which employees do not possess the skills that companies require, thus resulting in a labor shortage (p.1). For schools to fulfill this responsibility, they must identify the needs of the community, and the community must recognize the potential of schools. However, no information is available about how business and industry leaders are involved in CTE programs to develop curriculum that aligns with current and projected labor market needs and the local economy.

Despite the rise in popularity of CTE and its impact on students, businesses, and the economy, no studies have examined business and industry leaders' involvement in Alabama CTE programs, teacher satisfaction with the partnership, and barriers that CTE teachers perceived. Guest (2019) stated that a successful collaboration includes open communication, accessibility, flexibility, mutual benefits, and measurable results. Knowing teachers' feelings about the partnership is an essential missing link to the puzzle. There is a lack of literature regarding partnerships between CTE teachers and business and industry leaders in Alabama. Due to Alabama's booming economy, addressing the skills gap by investigating the root of the pipeline is necessary. This investigation will report how involved business and industry leaders are in Alabama CTE programs, how satisfied Alabama CTE teachers are with the relationship, and document the perceived barriers identified by teachers. As a result, vital information that can impact partnerships, relationships, student success, and economic growth will be readily available for future planning.

Purpose of the Research

Research shows that Career and Technical Education (CTE) programs boost high school graduation rates, postsecondary enrollment, employment rates, and earnings and positively impact the economy (Brunner et al., 2021). Accomplishing industry-recognized credentials enables students to demonstrate the knowledge and skills necessary to succeed in a particular occupation or industry. However, not all credentials may be valued equally in the workforce, leading to some students being placed in dead-end positions in low-wage industries. In 2019, ExcelinEd and Burning Glass Technologies reported that only 19% of credentials earned in CTE met employers' needs, and hence, many programs were deemed ineffective. Educating tomorrow's workforce is a task that should be taken seriously. Therefore, input from all stakeholders must be solicited so that the best possible course of action may be taken to reach the common goal.

Alabama State Department of Education pulls a poll of like-minded individuals together to create a comprehensive study system for each subject but recommends that each local organization align curriculum based on local needs (Amrein-Beardsley, 2022). This process aligns with the federal government, suggesting that state and regional educational organizations conduct a comprehensive needs assessment of their communities. Since the impact of CTE extends beyond classroom walls, all stakeholders must be involved in improving students' employability skills and creating programs aligned with local labor market demands. Therefore, the purpose of this study is to investigate the perceived level of involvement of business and industry leaders in CTE programs, teacher satisfaction with the partnership, and identify perceived barriers that affect the relationship between CTE teachers and business and industry.

Research Questions

The following research questions guided this research study.

1. How do CTE teachers perceive business and industry involvement in Alabama's Career and Technical Education programs?
2. To what extent are CTE teachers of Alabama satisfied with their relationship with business and industry based on the teachers' industry experience and teaching experience?
3. What perceived barriers affect the relationship between Alabama CTE teachers and the businesses and industry leaders based on the CTE programs, years of industry experience, and years of teaching experience?

Definition of Relevant Terms

Before proceeding with the study, the reader should understand several relevant terms. Below are some keywords that need to be defined:

Career and Technical Education (CTE): Providing students with courses and hands-on, work-based opportunities to prepare them for employment and postsecondary education.

Industry: A group of business leaders within a particular sector, such as construction, health care, manufacturing, retail, and services.

Business and Industry Leaders, Partners, or Employers: An employer or business leader is an individual in a position of authority within their industry or business.

Partnerships or Engagement: The collaboration of a public school district with a local business or industry leader, or community leader to develop student opportunities.

STWOA: School to Work Opportunities Act of 1994

Advisory Committee: An advisory committee is a collection of individuals who bring unique knowledge and skills which augment the knowledge and skills of the formal board of directors in order to more effectively guide the organization.

Limitations

Researchers at the University of Southern California defined limitations as those aspects of your study's design or methodology that influence its application or interpretation (Price & Murnan, 2004). The limitations on generalizability and utility of findings are referred to as these constraints. This study has several limitations, including:

1. An Alabama State Department of Education representative sent the survey email to participants.
2. The number of CTE teachers who responded to the survey
3. The lack of variety in CTE program respondents
4. The self-reporting survey instrument
5. The topic has not been studied in depth previously

Delimitations

Delimitations are the boundaries set for the study by the researcher. The scope of this paper is confined to the State of Alabama and Alabama CTE teachers. It is important to note that statements regarding trends, the statistical significance of results, and the author's conclusions have no theoretical application outside their scope.

Chapter 2: Review of Literature

Introduction – What is a partnership?

In Alabama CTE, business partnerships and engagement play an important role, as they are referred to in all the updated courses of study for 2021. The system of study has been designed with the assistance of several business partners. Also, Alabama CTE department at the state level published an advisory committee handbook to guide CTE and workforce partnership. Advisory committees for CTE are individuals who share a common interest in one or more sections of CTE. The group includes local business and industry professionals, teachers, students, and administrators (Smith, 2013*)*. Advisory committees must be formed and maintained by schools receiving federal funding for at least one career and technical education program under the Carl D. Perkins Career and Technical Education Grant Improvement Act of 2006. (Carl D. Career and Technical Education Act of 2006: An Overview, 2016). The committee develops, establishes, and evaluates CTE programs to ensure students are adequately prepared for the workplace. The CTE teacher must establish and sustain an advisory committee for their CTE department and meet at least twice a year.

Partnerships between businesses and industries are a form of association that links employees across various corporate sectors. In this partnership, both groups share a common interest and skill set and can focus on competitiveness and career growth (Watters et al., 2013). MacQueen et al. (2001) defined a community as individuals connected by social ties who share the same values, goals, and perspectives. High expectations for schools are mutually beneficial for the community and the school. School is the hub of a community, determining its growth and development or the lack; therefore, it is necessary to have a collaborative approach to ideas that will significantly impact the future of that community.

The concept of business and industry partnership has been fashioned by scholars like Watters et al. (2013). Watters et al. (2013) explained how school and business partnerships benefit participants. Globally, states and organizational stakeholders continue to pursue collaborative structures with schools aggressively. Collaboration between schools and industries is essentially regarded as industry-school partnerships or ISP (Watters et al., 2013). Stakeholders engage in this initiative through funding mechanisms and properly formulated policies. Watters et al. (2013) established that this association is done to attain the demands of today's post-industrial economy knowledge. Terms like joint ventures, school-enterprise collaboration, networks, collaborations, public-private associations, coalitions, business-school partnerships, social partnerships, and business-school associations are used to define business and industry partnerships in learning institutions (Watters et al., 2013). Cooperation between businesses and industries happens as either formal or informal arrangements of ideas and activities.

The concept of partnerships has long been touted as a cure-all for educational problems (Barnett, 2005). Hands (2005) argued that such partnerships provide twofold benefits. In addition to enhancing student learning opportunities, these partnerships facilitate transitioning from high school to the workplace. Abowitz (2000) contended that a teacher and a business or industry partner uniquely prepare students for meaningful social participation and believed that school-business partnerships are essential for success. As community members, businesses are interested in ensuring that schools perform at their best.

Bryan and Henry (2012) offered a comprehensive analysis regarding the role of business and industry partnerships in society. For example, many stakeholders participate in business-school alliances to achieve the set goals. The set goals have mutual all parties aim to benefit in the long run. Stakeholders that help to attain the set goals in these forms of partnerships include

employers, financiers, students, business and industry leaders, parents, government agencies, and labor experts. A business partnership can provide funding, professional expertise, and a practical curriculum often lacking in schools (Abowitz, 2000). Watters et al. (2013) maintained that partnerships between businesses and industries provide educators with a means of capitalizing on existing learning opportunities. This type of learning occurs in the day-to-day operations of companies. To facilitate learning, businesses and schools must develop and adapt certain content to address both parties' needs. It is imperative to capitalize on current opportunities to provide learners with competencies in complementary skills.

Collaboration between schools, businesses, and industries can effectively provide complementary capabilities and competencies for children's education in situations where a school alone cannot give them the education they need (Griggs et al., 2017; Watters et al., 2013). In educational partnerships, knowledge is shared to achieve common objectives, including training the future workforce, developing skills, and assisting students in achieving academic success.

Partnerships between schools, businesses, and industry benefit students by providing hands-on learning opportunities. Students gain essential skills through regular, professional interactions with industry partners as part of a school-industry partnership. This benefit most likely occurred because, unlike traditional school activities and curriculum, the partnership experiences provided a link to the real world that motivated students who might otherwise feel marginalized. Educational partnerships improve classroom opportunities for students while providing opportunities for teachers and business partners to develop new skills in novel ways (Griggs et al., 2017). Partnership benefits can be short-term or long-term, depending on the deciding terms.

Business and industry partners offer opportunities for students to complete on-the-job training while still enrolled. Students gain skills and financial compensation during this process, while companies use student workers' acquired skills to accrue income (Bryan & Henry, 2012). There are benefits to both parties in this situation. Businesses often classify their benefits into six levels: productivity, effective and efficient recruitment, skill enhancement, profit, community recognition, and individual satisfaction. Companies have formed a well-defined structure to allow business-to-school placement and enjoy mutually experienced benefits (Bryan & Henry, 2012).

Business and industry leaders and CTE educators comprehend the need for partnership and its lasting effects on everyone involved. Thus, it is essential to determine if business and industry leaders play a role in CTE programs in preparing students for the community's immediate need that meets and exceeds tomorrow's workplace requirements, examine teacher satisfaction with the relationship, and document the perceived barriers to the relationship.

History of CTE Partnership with Business and Industry

Career and Technical Education has historically been referred to as vocational education. A long partnership between vocational education and business and industry dates back to 1776. During the country's first 50 years, education was minimal for children. Between 1776 and 1826, known as "The Awakening," children were educated freely to become great future leaders (Bryan & Henry, 2012). More boys than girls were enrolled in schools. However, only high-class families had the means to educate their boys. Schooling for girls began in the 1800s, the Awakening (Ogden, 1990). Vocational education started at home when children observed and practiced everyday activities such as domestic skills and specific trades taught by their parents.

Public education became more important during the early 19th century as it focused on producing workers for different jobs. In the Independent Action period, 1826 through 1876, industries and schools collaborated to provide students with relevant careers suited to their training (Bryan & Henry, 2012). The focus on producing workers for various skilled jobs laid the foundations for vocational education and has since been called upon to solve the skills gap in the workforce (Bryan & Henry, 2012).

The Vocational Education Age Emerges between 1876 and 1926 brought about groundbreaking changes. In 1879, the first manual career school was established in St Louis, Missouri (Bryan & Henry, 2012). It was difficult for minors to attend school; however, the 1916 child labor law prohibited them from working specific jobs. As a result of this increase in teenagers attending schools, schools became overcrowded with those unable to work alongside their parents. The increase was evident in vocational education programs. Hands-on and theoretical elements were incorporated into the programs' curriculum that were identical to the ones in the workplace (Gordon, 2008). During this time, agriculture flourished and was incorporated into vocational education. Manufacturing companies quickly realized the value skilled workers have on production. Students were provided with the skills necessary to meet the businesses' immediate demands (Gordon, 2008). The support grew in response to the impact of vocational training on the workers they received. More businesses in the community began to provide various resources to support and maintain the vocational school. Until 1917, federal funding for vocational education was not available.

During the Coming-of-Age era, which spans between 1926 and 1976, women and girls started participating in previously prohibited activities (Bryan & Henry, 2012). Following World War, I, the number of people entering the field of vocational education increased dramatically. It

was clear that during the Coming-of-Age era, employers had become increasingly open to employing graduates, boys, and girls, with relevant skills appropriate for their careers. One such employer was The United States Department of Defense. As a result of the significant expansion of vocational education during World War II, the country needed skilled workers to defend itself against invasion and looked to vocational education for assistance (Gordon, 2008). Women played a significant role in the production process in WWII due to the training they received in their vocational programs (Gordon, 2008). The partnership between business and industry and vocational education educators has been strengthened due to the requirement that teachers must teach marketable skills aligned with the local job market.

Legislation that Supports Business Partnerships with CTE

A long history of successful and innovative legislation in support of CTE can be found, particularly in the areas of authentic learning involving business and industry partnerships. In 1917, the Smith-Hughes Act was passed, which provided the first federal funding support for educational programs (Ghost, 2016). The funding was influential in establishing vocational education programs to meet the needs of working-class Americans. The legislation's primary purpose was to prepare workers for the new industrialized global economy and increase employment for young adults (Walters, 1986). For funds to be approved, state boards must submit comprehensive programs addressing their vocational areas. The funding system was matched to work alongside local and state operations (Ghost, 2016). The program solved many issues but came with its weaknesses. However, the Act consequently created a system of funneling students into specific educational tracks. Students were either on a vocational way or a college track. At a trade school, students usually learn a particular skill on the vocational track, such as mechanics, agriculture, business, and home economics (Dougherty, 2016; Gray, 1991).

Students were encouraged to attend college or take up a trade. This system of tracking introduced by the Smith-Hughes Act in 1917 continued in some form for decades.

The George-Deen Act of 1936 resulted in federal funding appropriated at $14 million per year to expand vocational education and included funding teacher education and marketing occupation training (Ghost, 2016). Expansion continued with the George-Barden Act of 1946, which added funding for two student agriculture-related organizations and set limits on equipment spending. More than double previous federal dollars for vocational education, amounting to $29 million per year. As a significant component of this legislation, partnership with agricultural sectors was emphasized (Gordon & Schultz, 2020). The need for collaboration to further the expansion of vocational education was ideal to ensure that school curriculum and business requirements were aligned.

In 1958, the National Defense Education Act (NDEA) was established to ensure that students acquire foreign language, mathematics, and science skills aim an effort to defend the country (Ogden, 1990). To meet the nation's national defense needs, federal funding was provided to ensure a sufficient quality and quantity-trained workforce. In 1963, vocational education expanded due to job-related programs such as commerce, construction, and business (Bryan & Henry, 2012). Funding was essential to support competition in a rapidly evolving society. Again, businesses and industry leaders in their respective fields were called upon for their expertise in preparing students for similar and like-minded career opportunities.

In 1984, the Vocational Education legislation act was renamed after Carl D. Perkins, a Kentucky representative and education advocate. Carl D. Perkins Vocational Education Act of 1984 aimed to enhance the capabilities of learners for their future career roles (Gordon et al., 2020). CTE started to move from only focusing on skills to incorporating academics.

Contemporary vocational education began to take shape, incorporating accountability, aligning secondary and postsecondary education, academic integration, and business partnerships with the Carl D. Perkins Vocational and Applied Technology Education Amendment in 1990 (Gordon et al., 2020).

In 1994, the School-to-Work Opportunities Act (STWOA) was enacted, which linked school and work-based learning with industry partnerships. It was established to help prepare young people for high-skill, high-wage careers; however, employers require tailored skills to suit their local market (Davis & Pollack, 1995). Schools, businesses, and industry leaders developed a partnership and tailored it to the needs of the students and the businesses. This partnership is required to be ongoing and flexible, regularly evaluating the needs of each party. Unfortunately, it expired in 2001.

A state reserve fund and modified state authorizations were later created as part of the Carl D. Perkins Vocational and Technical Education Act of 1998, a continuation of the Carl D. Perkins Vocational and Technical Education Act of 1990. This authorization focused on alignment and integration. Eighty-five percent of the funding would reach local agencies through the state reserve fund. The same year, the American Vocational Association was renamed the Association for Career and Technical Education, reflecting a shift from job-specific vocational to skills-based, rigorous career education (Gordon & Schultz, 2020). A partnership is emphasized since businesses, industries, and schools officially view the knowledge gained as strategic investments (Ghost, 2016).

The language restriction preventing CTE from preparing students for vocations requiring a degree was lifted by Congress in 2006 (Stern et al., 2010). The term “vocational education” was retired, replacing it with “Career and Technical Education” (2010, p. 24) as a part of the Carl

D. Perkins Career and Technical Education Act of 2006 (Perkins IV). According to Stern et al., CTE is now federally defined as "providing coherent and rigorous content aligned with challenging academic standards and relevant technical skills needed to prepare for further education and careers in current or emerging professions" (2010, p. 24). Perkins IV introduced programs of study as a new unifying concept for CTE, with $1.3 billion supporting two funding streams.

The Strengthening Career and Technical Education for the 21st Century Act (Perkins V) continued the prior laws. Perkins V made a significant addition by requiring state and local agencies to complete a needs assessment that involves business and industry leaders partnering with schools to meet the immediate community's needs. The comprehensive local needs assessment prioritizes stakeholder engagement and data-driven decision-making, streamlines accountability measures, reduces secretarial authority, enhances efforts to serve special populations, and encourages innovation through a competitive grant program (Gordon & Schultz, 2020). Perkins V focused on programs of study and made significant updates to provide more flexibility to locals and states. Most of the legislation supporting CTE promotes collaboration between schools and industry, as they believe this partnership will benefit both parties.

As a requirement of Perkins V, states must submit a four-year plan, and local recipients must submit four-year local applications that include the results of the first comprehensive local needs assessments. Full implementation of the legislation was scheduled to begin in the 2020–2021 school year. CTE educators must demonstrate creativity and flexibility due to the challenges resulting from the COVID-19 pandemic.

The Benefits and Impact of Business and Industry Partnerships

The constant state of reform in American education is one of the defining features of school-industry partnerships when evaluating the benefits. When schools alone failed to educate children, industry and schools collaborated to educate children in the 1920s (Griggs et al., 2017). Schools involved with their communities perform better, have more parents volunteering, support school reform efforts, have higher test scores, have higher attendance rates, and see students with more opportunities to learn outside of the classroom (Griggs et al., 2017). It is common for young people in the United States who have completed high school to have no immediate plans to attend college or obtain a four-year degree. Often, they are ill-prepared for the workplace and drift around until they are in their late twenties (Symonds et al., 2011). Therefore, exchanging information promotes student success, develops skills, and educates the future workforce. As a result of educational partnerships, knowledge is shared to achieve common goals, such as training the future workforce, developing skills, and assisting students with achieving their academic goals. Gross et al. (2017) asserted a crucial connection between community investment and student achievement is beneficial to the community's growth and development.

A CTE advisory committee is vital to the future success of students and the workforce (Smith, 2013). In CTE programs, teachers are preparing students today as tomorrow’s future business and community leaders. Therefore, teachers need to be aware of the ever-changing knowledge and skills required by employers for a high quality CTE program producing qualifying workers (Stone, 2014). Local business and industry professionals are encouraged to support students by sharing their expertise with teachers and students through the advisory committee and actively participating in other areas of the program (Smith, 2013). Students’

future success is essential to themselves and the local, state, and national economy. Thus, organizing and maintaining an advisory committee in the CTE program will give students a unique advantage as they enter the world of work (Smith, 2013).

Business and industry, or school partnerships, have led to high-quality programs within CTE institutions. When students transition out of these institutions, they offer valuable skills to the competitive world. Bryan and Henry (2012) stated that business-school partnerships offered exceptional career pathways among graduates. Much focus is placed on the practical aspect rather than the theoretical concept. A school-business partnership provides students with opportunities for hands-on learning (Griggs et al., 2017). This learning typically replicates the exact working environment for which a student is being prepared.

Figgis (1998) found that educational partnerships can benefit schools and industries when viewed as strategic investments. Figgis (1998) also found that the companies in the study reaped various benefits due to the win-win situation in which they invested in their future employees. Internship programs enhance the employability of graduates by providing them with the knowledge and skills they need to succeed in the real world (Bryan & Henry, 2012). Hence, the immediate impact of business and industry partnerships has been improving professional abilities among students (Bryan & Henry, 2012). Other outcomes include increasing the rate of employment and creating mutual co-existence between businesses, schools, and communities.

A growing skills gap exists in the U.S. workforce, according to Mills and Whitney (2012). Young adults lack the technical (hard) and essential (soft) skills required to fill middle-class jobs, resulting in a skills gap (Mills & Whitney, 2012). As a result of limited skills among learners, Cohen and Morse (2014) argued that contemporary society lacks industrial experts. In a press release announcing the results of a study conducted by the Business Education Alliance of

Alabama, President Joe Morton said that Alabama is on pace to have a shortage of close to 200,000 highly skilled workers by 2025-2026. The results showed that the state is not equipped with the right tools to produce an increased number of highly skilled workers and that it must change to ensure that workers leaving school are qualified for the jobs that will become available.

To fill the widening skills gap, Alabama has set a goal of training an additional 500,000 highly skilled workers by 2025. Therefore, schools and businesses, and industries must develop and adapt specific content that addresses workplace needs in order to ensure that learning is relevant to the workplace (Watters et al., 2013). In contrast, the report indicated that Alabama high school graduates would only provide half of the workers needed to reach the goal if they entered the workforce with a high-value credential or entered postsecondary education prepared to earn a degree over the next five years. Alabama's economy is spiraling toward a crisis, and workforce development has been challenged to change the pipeline and train the skilled workforce to solve this problem.

Collaboration between schools and industries can complement children's education when schools alone cannot meet their educational needs. Transitioning from high school to the workplace presents troubling knowledge gaps for many students. Phillips et al. (2002) found that individuals can become objectively prepared for work beyond high school by engaging in work-based learning and exploration. Providing active adult support and orienting children to the adult world is particularly helpful in promoting readiness. An adaptive transition from school to adulthood requires work-based learning, adult orientation, business and industry exposure, and adult support (Phillips et al., 2002).

Gross et al. (2015) agreed that there is an emerging skills gap, and partnerships with businesses and industry can help fill this gap. The Wall Street Journal and Vistage International, a San Diego peer advisory group for executives, surveyed 848 small-business owners and CEOs in June 2014 and found that 33% of 848 had unfilled job openings due to a lack of qualified applicants, up from 31% nearly two years ago (Needleman, 2014). The best preparation for life after high school comes from integrating academic skills into well-developed CTE programs. Therefore, it is imperative to have a partnership between educators and employers to transition from adolescence into adulthood smoothly. Developing a more collaborative approach to the education and training of the next generation of workers would surely yield social and economic benefits for the United States (Symonds et al., 2011).

Preparing young people for successful and productive adult lives needs to be improved in the American system. An essential aspect of comprehensive school reform is the creation of meaningful career training pathways (Symonds et al., 2011). In addition to the college readiness piece that has dominated for too long, career training will be essential. Symonds et al. (2011) emphasized that the fabric of our society will surely erode if we do not address this problem aggressively. With work, one can achieve economic opportunity and a middle-class lifestyle. The American dream may remain a distant dream for millions of young Americans entering adulthood without access to marketable skills (Symonds et al., 2011). Without better preparation, teenagers and young adults may grow increasingly frustrated with inadequate and unavailable opportunities. It will lower their quality of life, increase their burden on society, and leave many potential contributions unrealized. A decline in the national economy is troubling for any organization.

Examples of Business and Industry Partnerships

Schools and businesses should collaborate to enhance students' ability to connect academic content to real-world contexts (Willems & Gonzalez-DeHass, 2012). A vivid example of a school-business partnership program includes the "Florida school-community partnership" (FSP) program (Ghost, 2016). FSP entailed considerable contributions that helped learners get the appropriate skills needed in the world market. FSP was initiated in 1994 by Bowman and Dawson-Jackson. FSP was a state-funded school-business initiative to offer learners and families a wide range of learning opportunities and wellness (Ghost, 2016). Some groups undertook this initiative: the U.S. Military, two colleges, the U.S. Department of Education, universities, and local teachers (Ghost, 2016). The partnership included paid and voluntary programs that benefited the parties involved. In addition to authentic instruction and problem-based learning, these partnerships allowed students to deal with real problems in their everyday lives.

A local business and a high school in Mississippi are another example of a school and industry partnership. A partnership in education is based on exchanging knowledge to train future workers, develop skills, and foster student success as a common goal. The results of this experiment suggested that students gain essential skills from regular, professional interactions with industry partners as part of school-industry partnerships (Griggs et al., 2017). Students who might otherwise feel marginalized were motivated by the partnership experiences, as they provided a link to the real world that inspired them (Griggs et al., 2017).

An administrator who regularly interacted with the students involved in the partnership experiment stated that the most important outcome of the interactions was acquiring essential skills. An instructor in history reported that students commented after a company visit that they had never seen anyone speak like that except for teachers. The company focused on various jobs

within the industry instead of singling out just one appointment. Partners displayed multiple departments with diverse skill sets to fill several positions. Informed career decisions and successful transitions into those careers were facilitated by the employees' versatility and job experiences.

Similarly, An Illinois study investigated superintendents' perceptions of business partnerships and found that superintendents believed that partnerships benefit instruction, learning, teachers, businesses, and the community (Rivkin, 2013). Education partnerships have been shown to improve student learning opportunities and to provide teachers and business partners with opportunities to develop new skills (Griggs et al., 2017).

As a result of their interactions with the students, employees shared and grew. Through their participation in the academy, employees contributed to the company's focus on education; they invested in the economy's future by investing in its students. As a result, they helped develop the future workforce. The core team members discussed how they wanted to see the partnership grow and change with the ongoing researcher.

Barriers to Business and Industry Partnership

The literature indicated that there are also risks despite the benefits of school-business partnerships. As stated by Kisner et al. (1997), it is essential to maintain a standardized process of review and reflection between the parties in an alliance so that the lines of communication are open and consistent to benefit both sides. This process should be established in the early stages. Communication be continuous as it is integral to the partnership. A communication breakdown can happen quickly, so knowing how to prevent it is vital to prevent this breakdown is essential. Klein (1995) proposed market incentives to ensure employers' participation in school partnerships, but Osterman (1995) argued that employer participation would not be widespread

and thus deemed incentives unnecessary. Osterman (1995) reported that partnership with schools would only happen when the businesses can see an immediate financial benefit and will not continue the partnership until a need arise again.

Cohen (2018) identified that there is no momentum among school-community collaborations in rural communities to provide learners with opportunities to engage with industry experts. In-person connections were often challenging because employers, schools, and institutions were far apart, and transportation options were limited. Furthermore, such programs have also been expensive (Cohen & Morse, 2014). Many rural communities lack industries, limiting learners' access to a wide selection of Career Clusters and Pathways (Cohen, 2018). As a result, school districts and schools often do not find it best to reach out to employers individually. Cohen & Morse (2014) reported that these partnerships have been challenging to flourish due to a lack of trust. Several institutions have competing interests (Cohen &Morse, 2014). Most for-profit businesses only create partnership to quickly generate profit, rather than equipping students with relevant skills needed.

According to Ziegler (2001), people spend their time where it matters most. Educators should promote the program and the student's success to engage the community. Business engagement exists in most schools but does not have the depth to make a significant difference, according to a study conducted by the Bill and Melinda Gates Foundation, Boston Consulting Group, and Harvard Business School (Antush, 2014).

Consequently, the impact is not visible and profitable since no solid long-term relationship benefits both parties. Partnerships with different goals are likely to fall apart due to their differences. Education and business leaders differed significantly in their perspectives. As a result, they did not want business and industry to assist them in understanding the skills students

needed. Unless schools, businesses, and industries have similar goals, a partnership will not likely succeed.

Over the years, employers have been asked to serve on advisory boards, provide advice on initiatives, and provide work-based learning to employees. Unsurprisingly, employers have high burnout rates among intermediaries and industry associations because they are always asked to perform tasks. The best way to avoid burnout is to simultaneously reach many employers and connect with local or regional intermediaries (Cohen, 2018).

In addition, school-community partnerships can adversely affect the education performance of students (Cohen & Morse, 2014). Students can concentrate more on a single partnership practice, prolonging their college years. As a result of this single vision focus, students forget about all the other opportunities that may even be a better choice for them.

Furthermore, businesses and industry partnerships can also negatively impact academic autonomy, according to Abowitz (2000). One partner can exert an imbalanced amount of influence, compromising the partnership's ability to accomplish its goals and objectives. The breakdown in communication and equalizing responsibility must be discussed early and often. Abowitz (2000) also stated that business and industry partners often feel they need to be the decision maker if they give up their time to help the schools. Even though these risks cannot be mitigated entirely, there are ways to do so. Maintenance is one of the most challenging challenges in sustaining an effective school-community relationship (Bryan & Henry, 2012).

Summary

In summary, there are a few main observations from the literature review. A common theme expressed by most sources was the need for partnerships between schools and industries. As a result of industry partnership, two problems were solved: preparing students for the

workforce of tomorrow and providing skilled workers necessary for economic growth. The partnership between business and industry enhances student learning opportunities and facilitates transitions from high school to the workplace (Abowitz, 2000; Bryan & Henry, 2012). Dr. Charles Prosser's theorems guided this study on vocational education, which set the foundation for a successful and effective CTE program, which is profoundly dependent upon the involvement of business and industry.

The history of CTE highlights critical periods that have transitioned over time and made significant advances. Legislation has encouraged and, in some cases, even required states and local governments to work with businesses and industry to develop plans to meet the community's needs. The legislative acts are the Smith-Hughes National Vocational Educational Education of 1917, George-Deen Act of 1936 and 1946, Vocational Education Act of 1963, Vocational Education Amendment of 1968, Vocational Education Amendment of 1976, Carl D. Perkins Vocational Education Act of 1984, Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990, Carl D. Perkins Vocational and Technical Education Act of 1998, Carl D. Perkins Career and Technical Education Act of 2006, Strengthening Career and Technical Education for the 21st Century Act (Perkins V).

Several high-quality programs have been established within vocational institutions due to partnerships between businesses, industry, and schools (Bryan & Henry, 2012; Figgis, 1998). In educational partnerships, knowledge is shared to achieve common goals, such as preparing the future workforce, developing skills, and assisting students. Over the years, CTE has gained bipartisan support primarily because of this win-win situation. For many students, transferring from high school to the workplace presents troubling knowledge gaps. To solve this increasing skill gap in the U.S. economy, researchers such as Phillips et al. (2002), Bryan and Henry (2012),

Magnum et al. (2022), Mills and Whitney (2012), and Symonds et al. (2011) recommended implementing business and industry partnerships.

Despite the many benefits of school-business partnerships, they also have potential risks. A standardized process of review and reflection must be maintained so that communication lines remain open and consistent so both parties can benefit from the partnership (Cohen, 2018). There is insufficient momentum among rural school-community groups to collaborate and engage with industry experts. School, business, and industry partnerships are affected and sometimes prevented by some significant challenges. Among the challenges are a lack of trust, no in-person connection, a distance from the business location, transportation difficulties, educators' willingness, limiting student opportunities to only a particular industry, and employer burnout.

In conclusion, the literature review emphasizes the need for business and industry partnerships as it is a win-win situation if implemented correctly. However, business and industry partnerships also have barriers. Research suggests that with careful planning, barriers can be avoided through open communication (Bryan & Henry, 2012; Abowitz, 2000).

Chapter 3: Methodology

Introduction

This chapter describes the methods used in completing the study. This quantitative study followed the characteristics defined by quantitative research. In quantitative research, the investigator collects and interprets numerical data that can be used to look for patterns and averages, make predictions, test causal linkages, and extrapolate results to larger groups (Bhandari, 2020). The purpose of this quantitative study is to determine business and industry level of involvement in CTE programs, examine teacher satisfaction with business and industry leaders and identify barriers that affect the relationship between Alabama CTE Teachers and business and industry leaders. The study's research questions guide in completing the required research.

1. How do CTE teachers perceive business and industry involvement in Alabama's Career and Technical Education programs?
2. Is there a relationship between Alabama CTE teachers' industry experience, educational experience, and their level of satisfaction with the relationship with business and industry leaders?
3. What perceived barriers affect the relationship between Alabama CTE teachers and the businesses and industry leaders based on the CTE programs, years of industry experience, and years of teaching experience?

The following sections are population, instrumentation, research design, data collection, data analysis, and a comprehensive summary of the research methods.

Participants

A convenience sampling approach was utilized. Career and Technical Education (CTE) teachers in Alabama's public school systems were surveyed in the study. The survey was emailed to all CTE teachers representing all 16 career programs in the state. To effectively meet the diverse needs of students and the workforce, CTE is organized into 16 programs. These programs serve as a way to categorize and group related career pathways, providing students with a clear and organized framework for exploring various career options (Conneely & Hyslop, 2018). The 16 programs encompass a wide range of industries and career fields. This allows students to gain specialized knowledge and skills in their area of interest. By breaking CTE into programs, educators can provide focused, targeted instruction that aligns with industry standards and workforce demands (Conneely & Hyslop, 2018).

CTE teachers best fit this research study as CTE programs have been deemed the cure to the rapid decline of skilled workers in the U.S. economy (Willems & Gonzalez-DeHass, 2012). School and industry partnerships provide educators with opportunities to engage in real-world learning in the workplaces of their partners (Watters et al., (2013). The federal government requires states, regions, and school districts to conduct needs assessments based on their communities to qualify for Perkins funding. Therefore, Alabama CTE teachers are the ideal sample to target for this study as they would know firsthand about the business and industry partners' role in completing the needs assessment and business and industry involvement in the program they teach.

Research Design

The survey research design was chosen for this study due to its capability to collect large amounts of information from a large population, leading to greater statistical power and its

availability of validated models (Bhandari, 2020). The data used in this research is derived primarily from survey results and calculated figures. The researcher developed survey was designed to help provide insight into business and industry involvement in Alabama CTE programs, how satisfied teachers are with the relationship with business and industry, and perceived barriers that affect relationships and determine if the involvement correlates with the barriers. The survey was developed to address the stated research questions. The study is non-experimental, as no intervention and manipulation of the variables will occur. Advantages of this study design include ease of use, cost-effectiveness, and no risks for participation in the study.

Instrument

The survey developed by the researcher with guidance from the workforce development advisory council's handbook for CTE and formatted for electronic delivery using Qualtrics. The survey consisted of eleven (11) questions, three (3) Likert questions, three optional (3) open-ended questions, and five (5) multiple-choice questions. Based on the advisory committee handbook, survey questions were constructed to address research questions without burdening survey respondents. Question and answer syntax will be closely monitored to ensure only standard terms are used and limit the amount of educational/technical jargon.

The Likert scale format was used for most questions. When the Likert scale format was unsuitable, open-ended questions and multiple-choice questions were utilized. Likert scales were used to measure the perceived level of involvement, level of satisfaction, and perceived barriers with greater nuance. Participants were provided with three open-ended questions with text entry capabilities to provide any other valuable information not covered in the Likert scale questions. Multiple-choice questions were primarily used for demographic questions so the participant could quickly select from an identifiable range.

The survey was divided into four sections. Each section addressed specific needs. The questions in each section are all guided by the suggested responsibilities and activities outlined in the CTE handbook of workforce development advisory councils and advisory committees for business and industry leaders' participation in CTE programs (Smith, 2013). In section one, there was a Likert scale question with 24 subscale items and two open-ended questions addressing research question number one regarding business and industry leaders' involvement in Alabama CTE programs. The Likert scale question have four options. Each option represents a value from 1 to 4; Option 1 = *Not at all Involved,* Option 2 = *Slightly Involved*, Option 3 = *Moderately Involve,* and Option 4 = *Extremely Involved*. Participants will only be able to select one of the four options.

Section two consisted of one Likert scale question with 16 subscale items that investigates teachers' level of satisfaction with business and industry determined by teachers' industry experience and teaching experience. The Likert scale question have five options. Each option represents a value ranging from 1 to 5; Option 1 = *Very dissatisfied,* Option 2 = *Dissatisfied,* Option 3 = Neither, Option 4 = *Satisfied, and Option 5 = Very satisfied*. Participants will only be able to select one of the five options.

Section three consisted of a Likert scale question with 18 subscale items and one open-ended question covering the perceived barriers determined by the difficulty in maintaining relationships with local business and industry leaders. The Likert scale question have five options. Each option represents a value ranging from 1 to 5; Option 1 = *Strongly Disagree,* Option 2 = *Disagree,* Option 3 = *Neutral,* Option 4 = *Agree, and Option 5 = Strongly Agree*. Participants will only be able to select one of the five options.

The open-ended questions allow the participants to offer suggestions for improving the relationship between CTE teachers and business and industry leaders but were optional. Section four collected demographic information from the respondent in multiple-choice questions. There were five questions in total, and all questions were in ranges that could be readily identified.

Data Collection

To conduct research that involves human participants, Auburn University researchers must obtain approval from the Institutional Review Board (IRB). The IRB committee approved the research study, and the approval documentation is included in the appendix section of the dissertation (Appendix A). Participants were invited to participate via email (Appendix D). An Alabama State Department of Education representative sent the survey email to participants. They were provided with an information letter (Appendix C) and a link to the survey (Appendix B). The information letter explained the nature of the study and assured them that no identifiable information will be collected. A follow-up email was sent out 42 hours later and then 78 hours after sending the initial invite (Appendix E).

The participants were instructed that by completing and submitting the survey, they have given consent to the terms and conditions mentioned in the informational letter. The survey participants were informed that the results will be anonymous and aggregated. Individual survey results were not singled out or distributed. By submitting the online survey, participants consent to their responses being compiled for academic research use and, if desired, posted, published, quoted, or paraphrased, based on the researcher's discretion. Whether the participants participate in the study or not, the participants did not suffer any harm.

The questions were constructed to best address the research questions without unduly burdening the survey participant. No question randomizing was utilized or deemed necessary as most questions utilized progressive responses of less to more value, familiarity, and importance.

Using the secure Qualtrics database made available by Auburn University, the email template data was only accessible by the researcher and major professor, ensuring the confidentiality of participants. The data collected was anonymous. No personally identifiable information was collected. To analyze the data, the data was downloaded into a data file. Data was calculated using the Statistical Package for the Social Science (SPSS) (Version 29) software application. SPSS is user-friendly and allows users to perform various statistical analyses, including descriptive statistics, inferential statistics, factor analysis, and regression analysis (Fields, 2000).

Data Analysis

Data were analyzed using the Statistical Package for the Social Science (SPSS) software (Version 29). The researcher utilized ANOVA and descriptive statistics to analyze the sample data (CTE teachers in Alabama). For internal consistency reliability, Cronbach's method was used. Cronbach's alpha is a common measure of internal consistency. Items used to form a scale should measure the same, thus, demonstrating internal consistency (Bland & Altman, 1997). Salkind (2013) defined descriptive statistics as values that organize and describe data characteristics, sometimes called datasets. Descriptive statistics used in this study include frequencies, means, and standard deviations. The table below (Table 2) shows the survey questions, variables, and statistical analysis that was used to evaluate each research question in the study.

Table 2

Data Analysis Plan

Research Question	Survey Question & Associated Variable	Variables	Statistical Test(s)
1.How do CTE teachers perceive business and industry involvement in Alabama's Career and Technical Education programs?	(Likert-type Scale): [Business and Industry Involvement] 1. In your CTE program, rate how involved are local business and industry leaders in each of the following.	Level of involvement (DV)	Descriptive Statistics: Mean, Standard Deviation. ANOVA One-Way ANOVA: CTE Programs * level of involvement
	(Multiple Choice): [Demographics] 1. What career and technical program (s) are you associated with? Please select all that apply.	CTE Programs (IV)	Descriptive Statistics Mean, Mode, Standard
2. To what extent are CTE teachers of Alabama satisfied with their relationship with business and industry based on the teachers' industry experience and teaching experience?	(Likert-type Scale): [Teacher Satisfaction] 2. Using the following criteria, rate your level of satisfaction with your relationship with business and industry leaders.	Level of satisfaction (DV)	Descriptive Statistics: Mean, Standard Deviation ANOVA One-Way ANOVA: Level of satisfaction * Industry experience * * Teaching experience

	(Multiple Choice): [Demographics] 2. Do you have any industry experience in the program you teach?	Industry Experience (IV)	Descriptive Statistics Mean, Standard
	(Multiple Choice): [Demographics] 3. How long have you been teaching?	Teaching Experience (IV)	Descriptive Statistics Mean, Standard Deviation
3.What perceived barriers affect the relationship between Alabama CTE teachers and the businesses and industry leaders based on the CTE programs, years of industry experience, and years of teaching experience?	(Liker- type Scale): [Perceived Barriers] 3. Please rate these statements as perceived barriers that affect the relationship between Alabama CTE teachers and business and industry leaders.	Perceived Barriers (DV)	Descriptive Statistics: Mean, Standard Deviation ANOVA One-Way ANOVA: Perceived barriers * CTE Programs * Industry experience* Teaching experience
	(Multiple Choice): [Demographics] 1. What career and technical program (s) are you associated with? Please select all that apply.	CTE Programs (IV)	Descriptive Statistics Mean, Standard Deviation
	(Multiple Choice): [Demographics] 2. Do you have any industry experience in the program you teach?	Industry Experience (IV)	Descriptive Statistics Mean, Standard Deviation

	(Multiple Choice): [Demographics] 3. How long have you been teaching?	Teaching Experience (IV)	Descriptive Statistics Mean, Standard Deviation

Note. Plans for analyzing the data collected.

Research Question One: How do CTE teachers perceive business and industry involvement in Alabama's Career and Technical Education programs? Business and industry involvement in CTE programs is directly correlated to Prosser's theorems one, two, nine, and ten. In his view, students should be taught in an environment that is similar to the one in which they will be working. The preparation of students for entry-level jobs in their respective fields requires practical training and the involvement of industry experts.

Multiple questions from the survey were used to answer research question number one. Survey question one in the demographic section was used as an independent variable, CTE Programs. This survey question gave an insight into the different programs that the CTE teachers are associated with, an average, while the frequency will give analysts the rate of occurrence of similar picked CTE Programs.

Survey questions were set up on a Likert scale where CTE teachers indicated business and industry involvement in their CTE program. The mean of the Likert scale question number one in the survey under the business involvement section was used to measure the level of involvement. Likert subscale items have the options of 1 = Not at all involved, 2 = Slightly involved, 3 = Moderately Involved, and 4 = Extremely Involved. The mean of the subscale items is calculated to generate the Involvement Level Interval scaled variable. The interval value range is measured using the following interval ranges, 1-1.75 = Not Involved, 1.76 - 2.5 = Slightly Involved, 2.6-3.25 = Moderately Involved, 3.26-4 = Extremely Involved. An internal increment

of 0.75 is calculated by subtracting the Lowest subscale option (1) value from the Highest subscale option (4) value and divided by the number of options ((4-1)/4 =0.75) (Pimentel, 2010).

Research Question Two (2): To what extent are CTE teachers of Alabama satisfied with their relationship with business and industry based on the teachers' industry experience level, and teaching experience? Prosser's theorems eleven and twelve focused on business partnerships and curriculum alignment with CTE programs. For specialized training, the only reliable content source is the experience of masters in the field, and those masters in the fields are best prepared to guide teachers on how to prepare their students.

Research question two used responses from question four under the teacher satisfaction section, and question two (industry experience) and three (teaching experience) under the demographic section on the survey. Descriptive statistics were completed on industry experience, and teaching experience, which served as the independent variables. To determine the level of satisfaction, a descriptive statistic was conducted on the Likert scale question four under the teacher satisfaction on the survey.

An ANOVA statistical analysis was done using the independent variables (industry experience and teaching experience) while using level of satisfaction as the dependent variable. This analysis drilled down into which independent variable, if not both, significantly impacted the level of satisfaction. Likert subscale items have the options of 1 = *Very dissatisfied,* 2 = *Dissatisfied,* 3 = Neither, Option 4 = *Satisfied, and 5 = Very satisfied*. The mean of the subscale items is calculated to generate the Level of Satisfaction Interval scaled variable. The interval value range is measured using the following interval ranges, 1-1.80 = Very Dissatisfied, 1.81-

2.60 = Dissatisfied, 2.61-3.40 = Neither, 3.41-4.20 = Satisfied, 4.21-5 = Very Satisfied. An internal increment of 0.80 is calculated by subtracting the Lowest subscale option (1) value from the Highest subscale option (5) value and divided by the number of options ((5-1)/5 =0.80) (Pimentel, 2010).

Research Question Three (3): What perceived barriers affect the relationship between Alabama CTE teachers and the businesses and industry leaders based on the CTE programs, years of industry experience, and years of teaching experience?

In Prosser's theorem fifteen, he mentioned adaptability and flexibility among those responsible for preparing students for entry-level jobs in high demand. Flexibility to changes and challenges is crucial to producing qualified, well-trained, and marketable employees. As a result, it is imperative to identify obstacles that may interfere with the ongoing relationship between business and industry in order to ensure the success of the program and students. The answer to research question number three was obtained through the use of multiple questions. Question numbers one, two, and three in the demographic section of the survey were used to compute descriptive statistics for the variables; CTE programs, industry experience, and teaching experience. The mean question 3 (Rate) Likert subscale items was used to generate the dependent variable (perceived barrier). The variables will be used to ascertain how being in being a one CTE program or another and having different teaching experience and industry experience impact the participants view of the overall perception of the subscale as barriers. It will also give an insight how strongly they believe that the overall subscale items are barriers. The perceived barriers Likert subscale items will be further broken down into intrinsic and extrinsic categories.

An ANOVA test was done utilizing all Independent variables to evaluate the level of variability regarding the perceived barriers. The perceived barriers variable was calculated based on responses to survey question six. Likert subscale items have the following options: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. To generate the Perceived Barriers Interval scaled variable, the means of the subscale items are calculated. The interval value range is measured using the following interval ranges, 1-1.80 = Strongly Disagree, 1.81-2.60 = Disagree, 2.61-3.40 = Neutral, 3.41-4.20 = Agree, 4.21-5 = Strongly Agree. An internal increment of 0.80 is calculated by subtracting the Lowest subscale option (1) value from the Highest subscale option (5) value and divided by the number of options ((5-1)/5 =0.80) (Pimentel, 2010).

Open-ended questions 2, 3, and 7 were optional for participants to provide additional information on the topic that the survey did not cover. No analysis will be done on the data gathered from these questions; however, they will serve as a reference point for further research in the future. The data can be manually curated to find typical desires and opinions of the participants that can be considered.

Summary

The research questions were answered by analyzing the data received from the survey. This quantitative study aimed to determine how involved business and industry leaders are in Alabama CTE programs, examine teacher satisfaction with business and industry leaders and identify barriers that affect the relationship between Alabama CTE Teachers and business-industry leaders. The procedures and research methods are detailed in this chapter. Additionally,

guidelines and proper procedures for conducting research was approved through Auburn University following IRB protocols.

Chapter 4: Statistical Analysis and Results

Introduction and Restatement of the Problem

The demand for skilled workers is prominent in every industry. Alabama Department of Education, the Career and Technical Education Division, requires that all CTE programs establish and maintain an advisory board with individuals who share a common interest in one or more sections of CTE. Advisory committees must be formed and maintained by schools receiving federal funding for at least one career and technical education program under the Carl D. Perkins Career and Technical Education Grant Improvement Act of 2006. The CTE teacher must develop and sustain an advisory committee for their CTE department and meet at least twice a year. The committee develops, establishes, and evaluates CTE programs to ensure students are adequately prepared for the workplace. In this partnership, both groups share a common interest and skill set and focus on industry skill sets and career growth (Watters et al., 2013). School is the hub of a community, determining its growth and development or the lack thereof; therefore, it is necessary to have a collaborative approach to ideas that will significantly impact the future of that community.

Business and industry leaders along with CTE educators comprehend the need for partnership and its lasting effects on everyone involved. This study investigates how CTE teachers perceived business and industry involvement in CTE programs, and teacher satisfaction with the partnership and identify perceived barriers that prevent the relationship from growing.

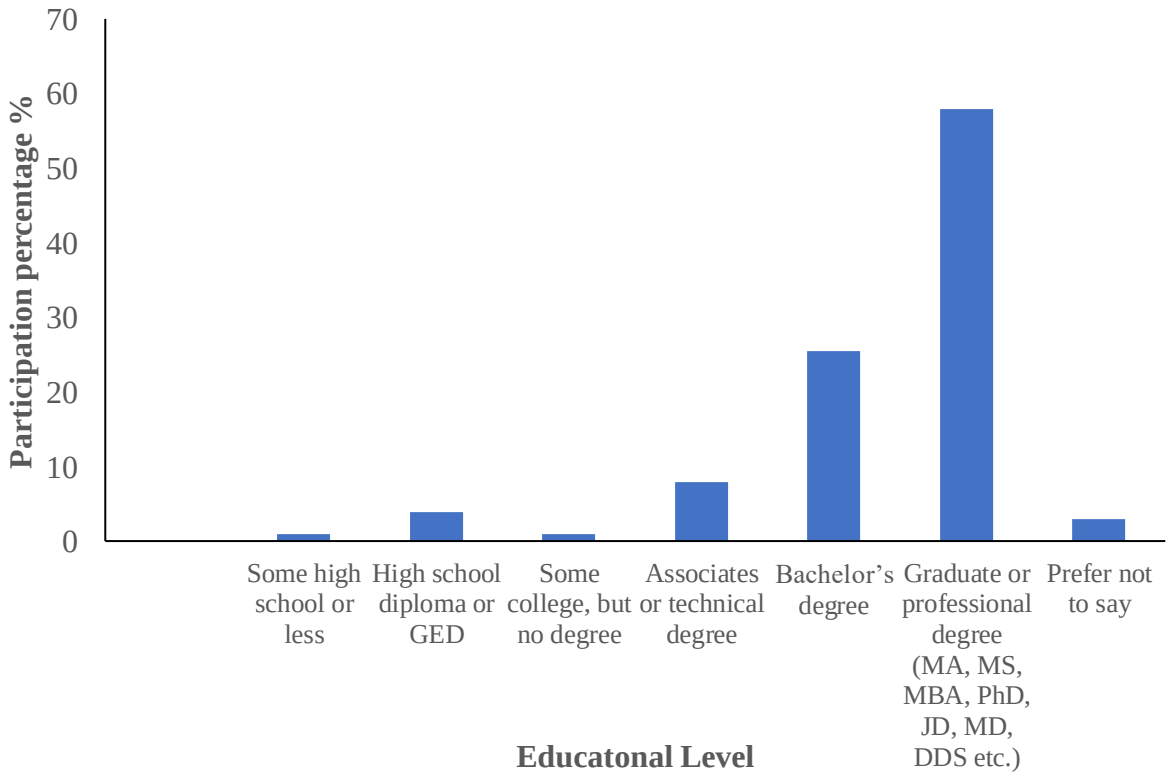
Participants

This chapter presents the results of the analysis of data collected from CTE teachers in Alabama, representing 16 career clusters, using the survey instrument developed by the

researcher. The survey received a total of 170 responses with 102 completion rates. The majority of participants reported having a graduate or professional degree (Figure 1), having 1- 5 years of industry experience (Figure 2), and having been teaching for 0-6 years (Figure 3), and predominantly female with a percentage of 56.9% (Figure 4). The survey data was analyzed using Statistical Package for Social Science (SPSS) (Version 29).

Figure 1

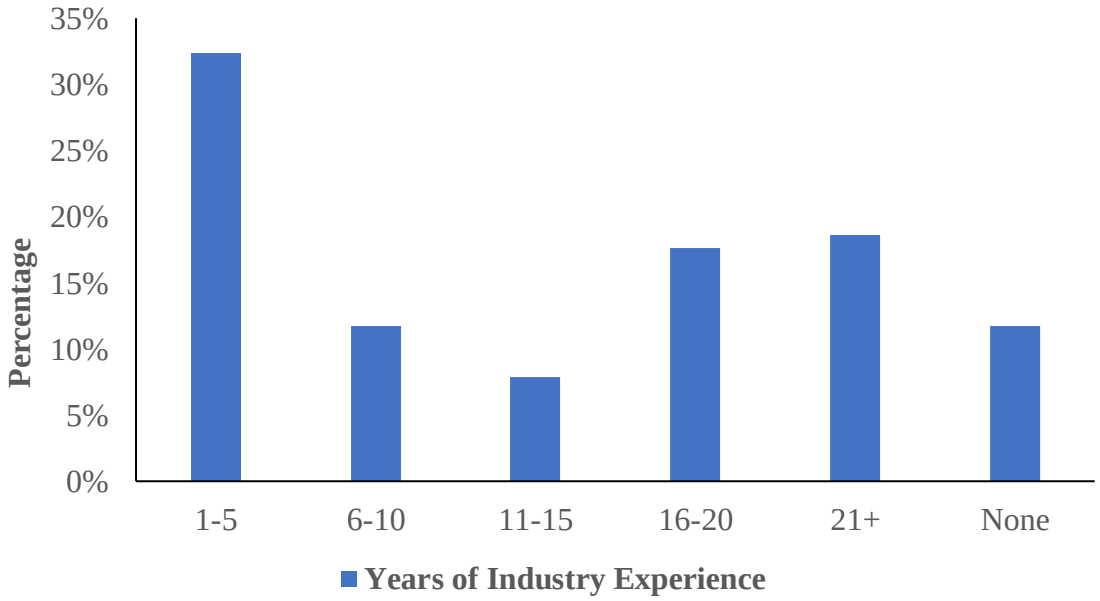
Educational Level



Note. Education level completed by Percentage.

Figure 2

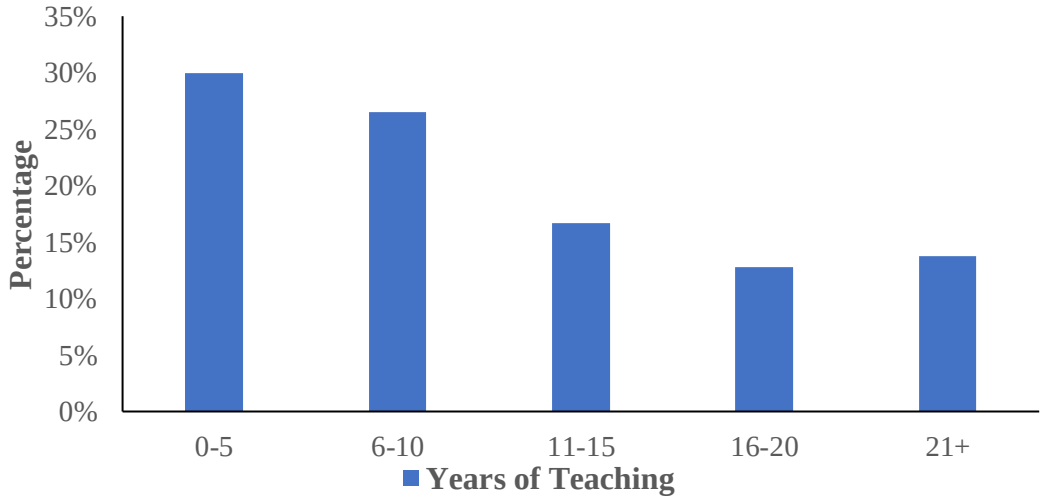
Industry Experience



Note. Industry Experience by Participation

Figure 3

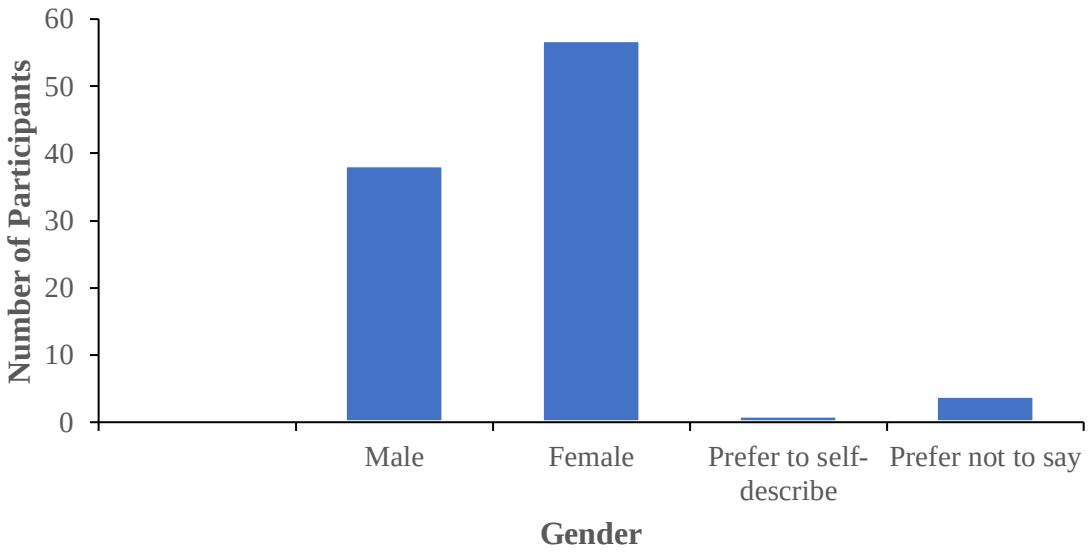
Teaching Experience



Note. Number of years teaching by percentage

Figure 4

Gender



Note. Participants describe themselves

Descriptive Analysis and Results

A descriptive analysis and statistical test (One-way ANOVA) were used to summarize, organize, and describe the data using descriptive statistics, including frequencies, means, and standard deviations. To determine the level of reliability of each Likert subscale, the Cronbach's Alpha internal consistency analysis was used (see Table 3). The score ranges from 0 to 1, with 0 representing the lowest level of consistency and 1 representing the highest level. Survey question number one, on industry involvement in Alabama CTE programs, includes a subscale of 24 items (α =.98); Survey question two, about teacher satisfaction, includes a subscale of 16 items (α = .97), and survey question three deals with perceived barriers affecting CTE teachers' relationship with business and industry includes a subscale of 18 items (α = .87). There is a sufficient degree of consistency between the Likert scales, indicating that the measure is reliable.

Table 3

Cronbach Reliability Test of Likert-type Scale Questions

Cronbach Reliability Test		
Question	Cronbach's Alpha	Subscale Items
Level of Involvement	.98	24
Teacher Satisfaction Level	.97	16
Perceived Barriers impacting Partnerships	.87	18

Note. Reliability test the consistency of the Likert Scale Questions.

Descriptive statistics were done on all the Likert scale questions. The mean of the Survey Question One Likert scale was used to generate the Involvement Level variable, the mean of the Survey Question Two Likert scale will be used to generate the Satisfaction Level variable, and the mean of Survey Question Three Likert scale will be used to generate Perceived Barriers' variable.

Research Questions

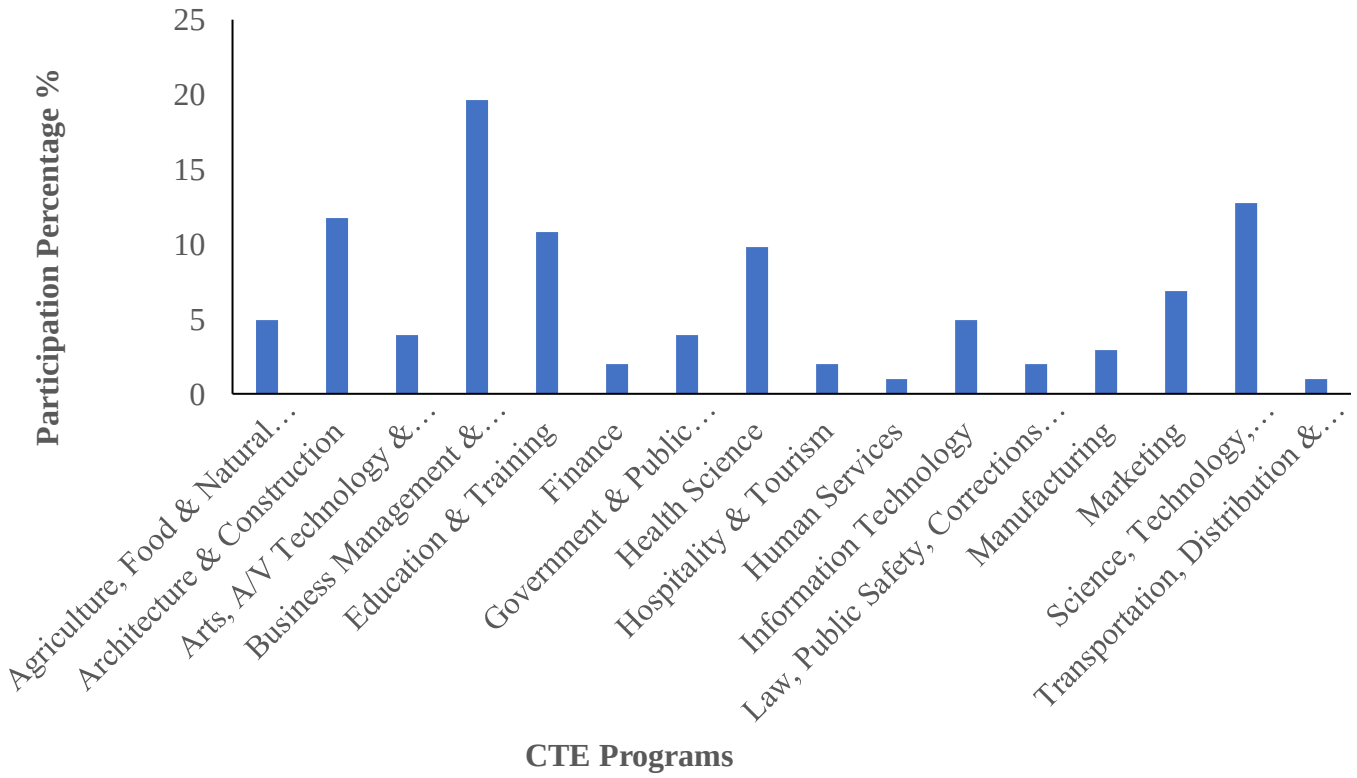
Research Question One: *How do CTE teachers perceive business and industry involvement in Alabama's Career and Technical Education programs?*

Two survey questions were used to answer research question one. Survey question one deals with business and industry involvement and served as the dependent variable, the level of involvement. Survey question one in the demographic section, where participants were asked to identify which CTE program do they teach was used as the independent variable called CTE Programs. This survey question gives an insight into the different programs that CTE teachers

are associated with in CTE (Figure 5). A descriptive statistic on CTE Programs was conducted giving the mean (average), which gives analysts the rate of occurrence of similar picked CTE Programs.

Figure 5

Selected Career and Technical Education Programs



Note. CTE Programs and the number of participants per program.

In the survey under the business involvement section, the mean of the Likert subscale items was used to determine the level of involvement. The respondents were requested to rate how involved are local business and industry leaders in the CTE program on a Likert subscale items having the options of 1 = Not at all involved, 2= Slightly involved, 3 = Moderately

Involved, and 4 = Extremely Involved. The mean of the subscale items is calculated to generate the Involvement Level Interval scaled variable. The respondents were requested to indicate which technical education programs they are associated with in the CTE program.

When assessing the CTE programs in which respondents indicated that they are involved in; the frequency based on the survey data report that Business Management & Administration (n= 20, 19.61%), Science Technology Engineering and Mathematics (n= 13, 12.75%), Architecture & Construction (n= 12, 11.76%) had better involvement rate while the minority of the respondents were in the Transport Distribution and Logistics (n= 1, 0.980%), Human Services (n= 1, 0.980%) and Finance (n=2, 1.961%) and Hospitality (n=2, 1.961%). See Figure 5.

As shown in Table 4, overall, businesses and industries are moderately involved in the Alabama CTE program (*M*=2.59, *SD* =.86). With only two participants (*M*=3.6, *SD*=3.5), the Finance programs believed that business and industries are extremely involved with their program. Among the programs, Business Management and Administration has the highest participation rate, with 20 participants (*M*=3.10, *SD*=0.82), which indicates moderate involvement of businesses and industries. The following programs also showed moderate business and industry involvement in their CTE programs: Agriculture, Food & Natural Resources (*M*=2.65, *SD*=1.03), Education and Training (*M*=2.84, *SD*=1.02), Manufacturing (*M*=3.06, *SD*=.67), Marketing (*M*=2.55, *SD*=.56), Science, Technology, and Engineering (*M*=2.65, *SD*=.90). Business and industry partners are slightly involved in Architecture & Construction (*M*=2.23, *SD*=.73), Arts, A/V Technology & Communications (*M*=2.26, *SD*=1.01), Government & Public Administration (*M*=2.13, *SD*=.73), Health Science (*M*=2.23, *SD*=.73), Hospitality & Tourism (*M*=2.23, *SD*=.94), Information Technology (*M*=2.33,

SD=.60), and Transportation, Distribution & Logistics (*M*=2.38, *SD*= 0). The programs indicating business and industry not involved are Human Services (*M*=1.71, *SD*= 0) and Law, Public Safety, Corrections & Security (*M*=1.71, *SD*=1.00).

Table 4

Business and Industry Involvement Level by CTE Programs of Likert subscale items

	Involvement Level		
CTE Programs	*n*	*M*	*SD*
Agriculture, Food & Natural Resources	5	2.65	1.03
Architecture & Construction	12	2.23	.74
Arts, A/V Technology & Communications	4	2.26	1.01
Business Management & Administration	20	3.10	.82
Education & Training	11	2.84	1.02
Finance	2	3.62	.35
Government & Public Administration	4	2.13	.94
Health Science	10	2.17	.62
Hospitality & Tourism	2	2.38	1.25
Human Services	1	1.71	.
Information Technology	5	2.33	.60
Law, Public Safety, Corrections & Security	2	1.71	1.00
Manufacturing	3	3.06	.67

Marketing	7	2.55	.56
Science, Technology, Engineering & Mathematics	13	2.56	.90
Transportation, Distribution & Logistics	1	2.38	.
Total	102	2.59	.86

Note. Descriptive Statistics of the Likert-type scale for Business and Industry Involvement Level by CTE Programs.

Analysis of Variance (ANOVA)

Research carried out evaluates the impact of CTE Programs on Business and Industry Involvement levels. The result demonstrated (Table 5) by a One-Way ANOVA, $F(15,86) = 1.56$, $p = .103$, showed that CTE Programs do not have a statistically significant impact on the Involvement Level which reaches significance with a *p*-value of 0.103 (which is more than the 0.05 alpha level). This means that there is no statistically significant effect of CTE Programs on teachers' perception of local business and industry leaders' involvement. The results showed that CTE Programs did not impact business and industry involvement levels significantly, the descriptive results were further analyzed.

Table 5

One-Way Analysis of Variance of Level of Involvement by CTE Programs

Source	*SS*	*df*	*MS*	*F*	*p*
Between Groups	16.114	15	1.074	1.559	.103
Within Groups	59.263	86	.689		
Total	75.377	101			

$^{*}p < .05$. $^{**}p < .01$.

Note. Find out the Level of involvement between the CTE Programs.

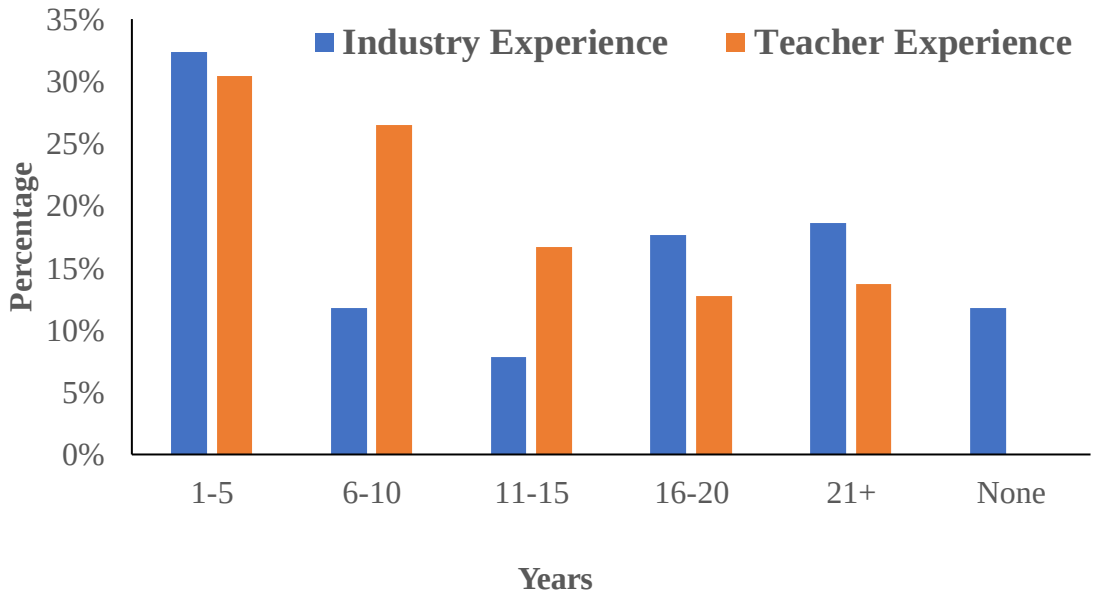
Research Question Two: *To what extent are CTE teachers of Alabama satisfied with their relationship with business and industry based on the teachers' industry experience and teaching experience?*

Research question two used responses from the Likert scale subscale items under the teacher satisfaction section, and questions two (industry experience) and three (teaching experience) under the demographic section of the survey. Descriptive statistics were done on industry experience, and teaching experience, which later served as the independent variables. To determine the level of satisfaction, descriptive statistics were conducted on the Likert scale subscale items under the teacher satisfaction on the survey.

About 32% of respondents indicated they had 1-5 years of industry experience, while 11% had no experience. As shown in Figure 6, the participants who have 6-10 years of experience in the industry account for 11.76%, 11-15 years for 7.84%, 16-20 years for 17.64%, and 21+ years for 18.73%. The results indicated that of the participants, 26.47% indicated having 6-10 years of teaching experience, 16.67 % had 11-15 years, 12.75% had 16-20 years, and 13.73% had 21+ years of teaching experience (Figure 6).

Figure 6

Industry Experience and Teaching Experience



Note. Participants in Industry experience and teaching experience.

Teachers with 1-5 years of industry experience and teaching 0-5 years (*M*=3.73, *SD* =1.11) are mostly satisfied with their relationship with business and industry partners and had the most participation (*n* =17). Only one participant with 6-10 years of industry experience and 16-20 years of teaching experience indicated being very satisfied (*M*=4.69, *SD* =0) with the relationship between business and industry (Table 6). There is also only one participant in this category with 11-15 years of industry experience and 16-20 years of teaching experience who is also very satisfied with the partnership (*M* =4.00, *SD* =0).

Teachers having 16-20 years of industry experience and teaching experience between 16-20 years reported the highest satisfaction levels with the relationship among business and industry partners (*M*=4.54, *SD* =.51) when participation was more than one (n=7). 20+ years of industry experience and teachers teaching 0-5 years was next in line with a satisfaction level of (*M*=4.22, *SD* =.51) and participation (n=4). Analysis of Teaching Experience regardless of participants' Industry experiences yield that those teaching between 16-20 years are very

satisfied with their relationship with business and industry partners (*M*=4.1, *SD*=1.1, *n*=13) while 11-15 years of teaching experience was the least satisfied of the group (*M*=3.3, *SD*=.97, n= 17).

With no industry experience, teachers teaching 21+ years have the highest levels of satisfaction (*M*=3.7, *SD* =1.3) with participation (n =7). Overall, participants with 16-20 years of teaching experience have the highest level of satisfaction (*M*=4.1, *SD* =1.2) with the least participation (n=13).

Table 6

Satisfaction level based on Teachers' Industry Experience and Teaching Experience

Industry Experience	Teaching Experience	*M*	*SD*	n
1-5 years	0-5 years	3.73	1.11	17
	6-10 years	3.36	.86	6
	11-15 years	3.41	1.34	5
	16-20 years	3.25	2.30	2
	21+ years	3.54	.80	3
	Total	3.57	1.09	33
6-10 years	0-5 years	2.38	1.94	2
	6-10 years	3.71	1.01	6
	11-15 years	3.44	.	1
	16-20 years	4.69	.	1
	21+ years	3.69	.97	2
	Total	3.54	1.13	12
11-15 years	6-10 years	3.67	.59	3
	11-15 years	3.23	.88	3
	16-20 years	4.00	.	1
	21+ years	3.19	.	1
	Total	3.48	.64	8
16-20 years	0-5 years	2.99	1.11	5
	6-10 years	3.16	.40	5
	11-15 years	3.69	.	1
	16-20 years	4.54	.51	7
	Total	3.68	.97	18
21+ years	0-5 years	4.22	.51	4

	6-10 years	3.94	.66	5
	11-15 years	3.19	1.21	5
	16-20 years	3.25	2.12	2
	21+ years	3.79	.78	3
	Total	3.70	.98	19
None	0-5 years	3.33	.58	3
	6-10 years	3.56	.18	2
	11-15 years	3.25	.18	2
	21+ years	3.68	1.29	5
	Total	3.50	.84	12
Total	0-5 years	3.55	1.10	31
	6-10 years	3.56	.73	27
	11-15 years	3.31	.97	17
	16-20 years	4.11	1.15	13
	21+ years	3.64	.89	14
	Total	3.59	.98	102

Note. Descriptive Statistic of the Likert subscale items on Satisfaction level based on Teachers' Industry Experience and Teaching Experience.

The following propositions (Table 7) had the highest mean and lowest standard deviation; The service business and industry provide on the advisory committee with (M=3.77, SD = 1.098), The ease of contacting business and industry leaders directly with (M=3.75, SD = 1.175), The expert advice provided based on community needs with (M = 3.73, SD = 1.153), The timing of schedule meetings with (M = 3.75, SD = 1.183). This implies the local business and industry leaders were moderately involved in the above activities.

Table 7

Teachers' Satisfaction Level Based on Satisfaction Likert Subscale Items

Satisfaction Level subscale Items	*n*	*M*	SD
The service business and industry provide on the advisory committee	102	3.77	1.10
The ease of contacting business and industry leaders directly	102	3.75	1.17

The timing of scheduled meetings	102	3.75	1.18
The expert advice provided based on community needs	102	3.73	1.15
Valid N (listwise)	102		

Note. Satisfaction Level Activities with the highest mean and low standard deviation

On a Likert scale, respondents were asked to indicate their level of satisfaction with the relationship between business and industry: 1 = Very Dissatisfied, 2 = Dissatisfied, 3 = Neither, 4 = Satisfied, 5 = Very Satisfied. The subscale range of the Likert Scale is 1-1.75 = Very Dissatisfied, 1.76 - 2.5 = Dissatisfied, 2.6-3.25 = Neither, 3.26-4 = Satisfied, and 4.1-5 = Very Satisfied. The mean of the subscale items was used to generate Level of Satisfaction interval scale variable. A One-way Analysis of Variance (ANOVA) was conducted to determine whether Industry Experience and Teaching Experience impacted Teacher satisfaction.

Using the one-way ANOVA, an analysis was done of the effect of industry experience and teaching experience on teacher satisfaction (Table 8). According to the ANOVA, the combination of teaching experience and industry experience does not significantly impact teachers' satisfaction levels statistically, $F(17,75) = .75$, $p = .74$. In examining the main effects of industry experience $F(5,75) = .10$, $p = .99$, and teaching experience, $F(4,75) = .68$, $p = .65$, it was found that neither industry experience nor teaching experience was statistically significant in determining teacher satisfaction. On average, the satisfaction level of teachers stayed the same, regardless of their industry and teaching experience. The mean, standard deviation, and frequency of the participant's selection for industry experience and teaching experience were calculated using descriptive statistics.

Table 8

ANOVA-Teaching Experience & Industry Experience Effect on Teacher Satisfaction Level

Source	*SS*	*df*	*MS*	*F*	*p*	N^2
Corrected Model	18.86[a]	26	.725	.699	.846	.195
Intercept	756.86	1	756.86	729.58	<.001	.907
Industry Experience	.52	5	.10	.10	.99	.007
Teaching Experience	2.70	4	.68	.65	.63	.034
Industry Experience * Teaching Experience	13.29	17	.78	.75	.74	.146
Error	77.81	75	1.04			
Total	1414.90	102				
Corrected Total	96.66	101				

R Squared = .195 (Adjusted R Squared = -.084)[a]

Computed using alpha = .05[b]

Note. Teaching Experience & Industry Experience Effect on Teacher Satisfaction Level

Research Question Three: *What perceived barriers affect the relationship between Alabama CTE teachers and the businesses and industry leaders based on the CTE programs, years of industry experience, and years of teaching experience?*

Multiple questions were used to answer research question number three. In the demographic section of the survey, question number one, two, and three were analyzed using descriptive statistics on the variables CTE Programs, Industry Experience, and Teaching Experience. This descriptive analysis was done in the previous research questions.

According to the above Figure 3 (teaching experience), most respondents indicated that they had 1-15 years of teaching at 73.53% while only 26.48% had over 15 years of teaching experience. The proposition with the highest mean and low standard deviation (Table 9), A great deal of work is required of CTE teachers, and developing a relationship with business and industry is often neglected (M = 3.52, SD = 1.16). The propositions had the lowest mean and low standard deviation; I have a supportive CTE director who encourages me to develop relationships with business and industry leaders (M = 1.99, SD = 1.14).

Table 9

Descriptive Analysis of Likert subscale items on Perceived Barriers Affecting CTE Programs

Perceived Barriers	*M*	*SD*
A great deal of work is required of CTE teachers and developing a relationship with business and industry is often neglected.	3.52	1.16
I have a supportive CTE director who encourages me to develop relationships with business and industry leaders.	1.99	1.14

n = 102

Note. Perceived barriers affecting CTE programs.

Using survey question six, perceived barriers, the researcher determined respondents' perception of barriers regarding business and industry relationships with Alabama CTE teachers. Based on their teachers' industry experience and teaching experience. Using a five (5) point Likert scale for Perceived Barriers, the subrange for the mean is as follows: 1-1.80 = Strongly Disagree, 1.81-2.60 = Disagree, 2.61-3.40 = Neutral, 3.41-4.20 = Agree, 4.21-5 = Strongly Agree. To generate the Perceived Barriers Interval scaled variable, the means of the subscale items are calculated.

Results showed (Table 10) that participants with 1-5 years of industry experience and 21+ years of teaching experience had the lowest mean (M = 2.44, SD = .45, n =3). The group

with the most participants has 0-5 years of teaching experience (n =17) and 1-5 years of industry experience (M=2.98, SD=.83). With only two participants (n =2), in the 16-20 teaching experience and 1-5 years of industry experience has the highest mean (M=4.02, SD=.67, n =2).

Participants with 6-10 years of industry experience and 0-5 years and 6-10 years of teaching experience are neutral towards perceived barriers (M=3.06, SD=.63, n =2) and (M=2.61, SD=.34, n =6). On average, participants with 11-15 years of industry experience, 0-5 years of teaching experience, and 11-15 years of industry experience disagree with perceived barriers (M=2.54, SD=.69, n =3).

With 16-20 years of industry experience, participants with 16-20 years of teaching experience on average disagree that the perceived barriers are affecting their relationship with business and industry partners in their CTE Program (M=2.44, SD=.98, n =7), while 6-10 years of teaching experience participants have neutral reactions to the perceived barriers (M=2.89, SD=.30, n =5).

Among participants with 21+ years of industry experience and 0-5 years of teaching experience, the lowest mean (M =2.42, S =.78, n =4) disagreed with the perceived barriers preventing relationships with industry and business partners in CTE programs. Teachers with 6-10 years of teaching experience and a professional with 21+ years of industry experience neutrally reacted to perceived barriers (M=2.96, SD=1.03, n =5).

Most participants, without industry experience, respond neutrally to perceived barriers. Overall, the results show that teachers with more teaching experience considered perceived barriers less of a barrier to maintaining and building relationships with business and industry partners.

Table 10

Perceived Barriers based on Industry Experience and Teaching Experience

Industry Experience	Teaching Experience	*M*	*SD*	*n*
1-5 years	0-5 years	2.98	.83	17
	6-10 years	2.98	.41	6
	11-15 years	3.26	.76	5
	16-20 years	4.02	.67	2
	21+ years	2.44	.45	3
6-10 years	0-5 years	3.06	.63	2
	6-10 years	2.61	.34	6
	11-15 years	3.00	.	1
	16-20 years	2.89	.	1
	21+ years	2.92	.27	2
11-15 years	0-5 years	2.54	.69	3
	6-10 years	2.56	.	1

	11-15 years	2.54	.69	3
	16-20 years	2.56	.	1
	21+ years	3.00	.	1
16-20 years	0-5 years	2.52	.77	5
	6-10 years	2.89	.30	5
	11-15 years	3.00	.	1
	16-20 years	2.44	.98	7
	21+ years	0	0	0
21+ years	0-5 years	2.42	.78	4
	6-10 years	2.96	1.03	5
	11-15 years	2.60	.61	5
	16-20 years	2.64	.20	2
	21+ years	2.67	.56	3
None	0-5 years	2.98	.20	3

	6-10 years	3.11	.08	2
	11-15 years	2.53	.12	2
	16-20 years	0	0	0
	21+ years	2.83	1.00	5

Note. Perceived Barriers Based on Industry Experience and Teaching Experience

Further analysis was conducted against perceived barriers based on teaching experience and CTE programs (Table 11). The results were consistent, with a neutral response ranging from 2.61-3.40. For respondents who are unsure about their position and/or are less inclined to express their opinion, a neutral response provides an easy out. Finance has the highest mean (M=3.67, SD=1.18, n =2) while Manufacturing has the lowest mean (M=2.35, SD=.52, n=3). Agriculture, Food & Natural Resources decreased steadily as the teaching experience increased. Business management & Administration also showed a decline in average as teaching experience years increased, except for participants teaching between 16-20 years.

Table 11

Perceived Barriers Based on Teaching Experience and CTE Program

		Perceived Barriers		
Teaching Experience	CTE Programs	*M*	*SD*	*n*
0-5 years	Agriculture, Food & Natural Resources	3.56	1.18	2
	Architecture & Construction	3.39	.16	2

	Arts, A/V Technology & Communications	3.07	.67	3
	Business Management & Administration	2.96	.93	5
	Education & Training	2.52	.70	3
	Finance	2.83	.	1
	Government & Public Administration	2.00	.63	2
	Health Science	2.68	.72	6
	Information Technology	3.17	.	1
	Law, Public Safety, Corrections & Security	2.86	1.22	2
	Science, Technology, Engineering & Mathematics	2.71	.86	4
	Total	2.84	.76	31
6-10 years	Agriculture, Food & Natural Resources	3.17	.	1
	Architecture & Construction	2.89	.71	5
	Arts, A/V Technology & Communications	2.22	.	1
	Business Management & Administration	2.78	.36	5
	Education & Training	2.93	1.13	3
	Government & Public Administration	3.06	.	1
	Health Science	2.89	.	1
	Manufacturing	2.64	.20	2
	Marketing	2.97	.32	4
	Science, Technology, Engineering & Mathematics	3.00	.73	3
	Transportation, Distribution & Logistics	3.06	.	1
	Total	2.88	.53	27
11-15 years	Architecture & Construction	2.57	.38	4

	Business Management & Administration	3.18	.98	4
	Health Science	3.22	.31	2
	Information Technology	2.63	.42	3
	Manufacturing	1.78	.	1
	Science, Technology, Engineering & Mathematics	2.94	.40	3
	Total	2.82	.64	17
16-20 years	Architecture & Construction	2.78	.	1
	Business Management & Administration	2.64	1.22	4
	Education & Training	2.54	.18	4
	Finance	4.50	.	1
	Health Science	1.44	.	1
	Hospitality & Tourism	3.56	.	1
	Science, Technology, Engineering & Mathematics	2.89	.	1
	Total	2.76	.92	13
21+ years	Agriculture, Food & Natural Resources	2.44	.55	2
	Business Management & Administration	2.08	.98	2
	Education & Training	3.17	.	1
	Government & Public Administration	3.00	.	1
	Hospitality & Tourism	2.78	.	1
	Human Services	2.72	.	1
	Information Technology	1.28	.	1
	Marketing	2.65	.62	3
	Science, Technology, Engineering & Mathematics	3.06	.71	2
	Total	2.58	.67	14

Total	Agriculture, Food & Natural Resources	3.03	.86	5
	Architecture & Construction	2.86	.55	12
	Arts, A/V Technology & Communications	2.86	.69	4
	Business Management & Administration	2.81	.86	20
	Education & Training	2.70	.65	11
	Finance	3.67	1.18	2
	Government & Public Administration	2.51	.70	4
	Health Science	2.68	.73	10
	Hospitality & Tourism	3.17	.55	2
	Human Services	2.72	.	1
	Information Technology	2.47	.76	5
	Law, Public Safety, Corrections & Security	2.86	1.22	2
	Manufacturing	2.35	.52	3
	Marketing	2.83	.46	7
	Science, Technology, Engineering & Mathematics	2.90	.60	13
	Transportation, Distribution & Logistics	3.06	.	1
	Total	2.80	.69	102

Note. Perceived Barriers of the Likert subscale items based on Teaching Experience and CTE Program

Survey question six perceived barriers was created with a two-fold intent. The researcher divided the proposed barriers into two groups: intrinsic and extrinsic barriers (see Table 13). To determine the level of reliability of each of the intrinsic and extrinsic Likert subscales, Cronbach's Alpha internal consistency analysis was used (see Table 12). The score ranges from 0 to 1, with 0 representing the lowest level of consistency and 1 representing the highest level. The first group represented the intrinsic barriers and includes a subscale of 8 items (α =.769).

The second group represented the extrinsic barriers, including a subscale of 10 items (α =.772). Sufficient consistency between the Likert scales indicates that the measure is reliable.

Table 12

Cronbach Reliability Test of Likert Scale Questions

Cronbach Reliability Test		
Question	Cronbach's Alpha	Subscale Items
Intrinsic Barriers	.769	8
Extrinsic Barriers	.772	10

Note. Reliability test the consistency of the Likert Scale Questions.

Intrinsic barriers are those internal barriers that prevent you from going above and beyond your current capabilities, and what is expected of you. They can be physical, mental, or emotional obstacles that stand in the way of achieving desired goals. These barriers can come in many forms such as fear of failure, lack of motivation, or lack of resources (Reiss, 2012). It is important to identify these intrinsic barriers so that one can address them and move forward with achieving desired goals. By doing so, one can push themselves further and reach higher levels of success (Reiss, 2012).

Extrinsic barriers are those external factors that prevent one from going above and beyond in their work (Reiss, 2012). External factors such as a lack of resources, time constraints, or a lack of support from management can be extrinsic barriers. It is important to recognize these extrinsic barriers and take steps to overcome them to reach your full potential. This could involve seeking additional resources, setting realistic goals, and building a supportive team around you (Reiss, 2012). It could also increase your motivation and self-confidence to overcome obstacles.

The intrinsic barriers with the high mean are "A great deal of work is required of CTE teachers and developing a relationship with business and industry is often neglected" with (*M*=3.52, *SD*=1.16) and "Business and industry inputs are valuable, so I use personal time to maintain relationships" with (*M*=3.69, *SD*=1.09).

The extrinsic barriers with the highest mean are "The CTE director independently maintains a relationship with the businesses and industries" with (*M*=3.40, *SD*=1.31), followed by "My work schedule does not provide time to form a relationship with business and industry leaders" with (*M*=3.36, *SD*=1.32) and "Using the same business and industry partners repeatedly causes burnout and weakens the relationship over time" with an (*M*=3.21, *SD*= 1.25).

Table 13

Perceived Barriers affecting CTE Programs grouped by Intrinsic and Extrinsic

	Barriers	
	M	*SD*
Intrinsic		
The businesses and industries in my area are not interested in a relationship with my program.	2.80	1.27
My program is well known in my area, it is not necessary to maintain business and industry relationships.	2.61	1.29
Too much time is required to maintain relationships with businesses and industries.	2.74	1.30
Relationships with businesses and industries are of little benefit to my program.	2.24	1.31
A great deal of work is required of CTE teachers and developing a relationship with business and industry is often neglected.	3.52	1.16
My industry knowledge is sufficient to operate without needing business or industry relationships.	2.73	1.28

It is not necessary to develop a relationship with local leaders because the curriculum, as written, meets their needs.	2.06	1.12
Business and industry inputs are valuable, so I use personal time to maintain relationships.	3.69	1.09
Extrinsic		
My work schedule does not provide time to form a relationship with business and industry leaders.	3.36	1.32
The CTE director independently maintains a relationship with the businesses and industries.	3.40	1.31
The local area does not have any related business and industry with which to form a relationship.	2.49	1.43
I am unable to form a relationship with businesses and industry due to their busy schedules.	2.81	1.29
Businesses and industries maintain relationships with administrators, not with individual teachers.	2.88	1.23
Relationships are only created when the businesses and industry can directly benefit from my program.	2.95	1.26
Using the same business and industry partners repeatedly causes burnout and weakens the relationship overtime.	3.21	1.25
The business and industry leaders tend to overextend their reach when it comes to advising, which ultimate	2.57	1.15
I have a supportive CTE director who encourages me to develop relationships with business and industry leaders.	1.99	1.14
Business and industry value the partnership and are committed to maintaining a close working relationship	2.36	1.14

Note. Categorization of Perceived Barriers Likert subscale items as Intrinsic and Extrinsic

A descriptive analysis was performed on the independent variables CTE programs, industry experience, and teaching experience in the previous research questions. Based on these

variables, a One-Way ANOVA test was performed on the dependent variable, perceived barriers. Upon further analyst, the sample size was limited thus resulting in no significant impact on perceived barriers. This data does not provide statistically significant evidence that CTE Programs, Industry Experience along with teaching experience can adequately predict perceived barriers.

Finally, survey questions 2, 3, and 7 were optional open-response questions that asked respondents to include any other ways businesses and industries are involved in their program, any feedback from the program's local needs assessment, and to make suggestions for improving your program's relationships with business and industry. Unfortunately, these questions did not yield any response resulting in no data to report.

Chapter 5: Summary of the Findings, Conclusions and Recommendations

Introduction

Training skilled laborers for the mercantile economy has always been the primary objective of CTE. Today, CTE is focused on preparing students for the real world by providing them with theoretical and applied academic knowledge and skills necessary for successful employment and preparing them for career success (Friedel, 2011). Increasing interest in CTE has arisen due to the increasing uncertainty of the American economy and the severe lack of qualified personnel available. The Association for Career Technical Education published a datasheet in the February 2021 issue of Alabama Career and Technical Education, indicating that the state's economy has been experiencing skills shortages for the past three years. A significant responsibility of CTE is to provide employers with the most qualified workers.

This task can be accomplished effectively if educators, companies and industry leaders, and other community agencies collaborate to provide students with the practical and relevant skills they need to create a sustainable life for themselves and their families in the workplace. Schools Must be able to establish successful partnerships with businesses and industries to meet their current and future requirements. It is the responsibility of CTE teachers to stay abreast of the requirements and expectations of employers to adequately prepare students to meet those needs while also preparing them for a future in which they can support themselves. Thus, a business and industry development strategy and school cooperation must be designed to benefit all parties involved.

A research survey instrument was developed to determine the interaction between Alabama CTE educators and business and industry executives. Data were collected and analyzed to determine business and industry leaders' perceived level of involvement in CTE programs and

teacher satisfaction with the partnership and identify barriers preventing the relationship from growing.

Data collected from Alabama CTE teachers, utilizing the researcher-developed electronic survey, were presented in Chapter IV. Discussion of the findings, conclusions, and recommendations are presented in this chapter. The following research questions guided this study.

1. How do CTE teachers perceive business and industry involvement in Alabama's Career and Technical Education programs?
2. To what extent are CTE teachers of Alabama satisfied with their relationship with business and industry based on the teachers' industry experience and teaching experience?
3. What perceived barriers affect the relationship between Alabama CTE teachers and the businesses and industry leaders based on the CTE programs, years of industry experience, and years of teaching experience?

Summary of Findings

Most participants reported having a graduate or professional degree (58%), having 1- 5 years of industry experience (32%), having been teaching for 0-10 years (56%), and being predominantly female (56.9%). The majority of the respondents indicated that they were in Business Management & Administration (19.61%), Science, Technology Engineering and Mathematics (12.75%), Architecture & Construction (11.76%), while the Minority of the teachers indicated that they were in the Transport Distribution and Logistics (0.980%), Human Services (0.980%) and Finance (1.961%) and Hospitality (1.961%).

The survey was created to collect information from Alabama CTE teachers on business and industry involvement in programs they are associated with to determine the level of involvement, teacher satisfaction, and perceived barriers. Hands (2005) and Barnett (2005) agreed that partnerships between schools, businesses, and industry enhanced student learning opportunities and facilitated the transition from high school to the workplace. Abowitz (2000) contended that a teacher and a business or industry partner play a unique role in preparing students for meaningful participation in society and believed that school-business partnerships are essential for success. Schools involved in their communities perform better, have more parents volunteering, support school reform efforts, have higher test scores and attendance rates, and see students with more opportunities to learn outside the classroom (Griggs et al., 2017).

Results showed that most of the CTE teachers who participated in the survey were associated with Business Management & Administration Program (20) and that business and industry are moderately involved (M=3.10, SD=0.82) in the program. Transportation, Distribution & Logistics, and Human Services had the lowest number of participants (1). Finance had only two (participants) and had the highest business and industry involvement level.

The rising volatility of the American economy and the overwhelming shortage of skilled workers has revealed the demand for increased participation in CTE. According to the Association for Career and Technical Education (ACTE), 58% of jobs in Alabama require skills training. However, only 48% of the workforce is fully qualified to perform successfully in these technical jobs. Therefore, knowing that business and industry are moderately involved in Agriculture, Food & Natural Resources, Education and Training, Manufacturing, Marketing, Science, Technology, and Engineering is good information for future success resulting in skilled workers for Alabama's economy and globally. However, much more work is still needed. Architecture & Construction, Arts, A/V Technology & Communications, Government & Public Administration, Health Science, Hospitality & Tourism, Information Technology, Transportation, Distribution & Logistics only show a slight involvement level from business and industry. Immediate attention is needed in Human Services and Law, Public Safety, Corrections & Security CTE programs as results indicate that businesses and industries are not involved in their CTE Programs.

Further Analysis was done to drill down on the satisfaction level of teachers based on industry experience and teaching experience. Given the small number of cases data collected, quantitative analysis of the data was not feasible to gather substantial information on the satisfaction level with industry partners of the teachers based on their Industry and Teaching experiences using Analysis of Variance statistical test. Descriptive statistics were conducted on Likert scale question four under the teacher satisfaction survey to determine the impact of industry experience and teaching experience on teacher satisfaction.

To fill the widening skills gap, Alabama has set a goal of training an additional 500,000 highly skilled workers by 2025. Therefore, schools, businesses, and industry partners must

develop and maintain a relationship to address workplace needs and ensure that learning is relevant (Watters et al., 2013). However, Cohen and Morse (2014) argued that contemporary society lacks industrial experts, resulting in a lack of preparation everywhere. The survey results showed that CTE teachers with 16-20 years of industry experience and 16 - 20 years of teaching experience report the highest level of satisfaction with their relationship with business and industry, followed by teachers with 1-5 years of industry experience and teaching with 0-5 years. However, overall, CTE teachers teaching 16-20 years have the highest satisfaction level, followed by 21+ years, 6-10 years, 0-5 years, then 6-10 years. The relationship between business and industry leaders and their contributions to the CTE program is unsatisfactory among teachers with 6-10 years of industry experience and 0-5 years of teaching experience (M=2.38, SD=1.94, N =2). The more experience CTE teachers have in the industry, the less satisfied they are with business and industry partnerships.

President Joe Morton of the Business Education Alliance of Alabama said that Alabama is on pace to have a shortage of close to 200,000 highly skilled workers by 2025-2026. The state lacks the right tools to produce more highly skilled workers. However, the results showed that the overall satisfaction level range between 3.26-4, showing that CTE teachers are indeed satisfied with their relationship with business and industry partners in their respective programs. This indicates that Alabama high school graduates will enter the workforce with high-value credentials and skills the business and industry needs. Alabama workforce development has accepted the challenge to change the pipeline and help train the skilled workforce to solve economic problems.

An ANOVA test was attempted to answer research question three, but there was no evidence of significance due to the limited sampling size. Further analysis was done using

descriptive statistical data to analyze the effect of CTE Programs, Industry Experience, and Teaching Experience on perceived barrier levels. The results showed no statistically significant impact on the perceived barrier level.

Given the limited sample data, it is difficult to predict perceived barriers from CTE Programs, Industry, and Teaching experience; however, the descriptive Analysis of these variables gives an insight into their perception based on the different combinations of the variables. The descriptive analysis showed that CTE teachers with 1-5 years of industry experience, 0-5 years of teaching experience, and are a part of the Agriculture, Food & Natural Resources strongly believe the barriers listed are significant, which resulted in the breakdown of building and maintaining a relationship with business and industry.

Using survey question six, perceived barriers, the researcher determined respondents' perception of barriers regarding business and industry relationships with Alabama CTE teachers. Based on their industry experience and teaching experience, their perception of barriers was analyzed. Overall, the results show that teachers with more teaching experience considered perceived barriers less of a barrier to building and maintaining relationships with business and industry partners.

Ziegler (2001) suggested that educators should promote their program and the student's success to engage the community, business, and industry partners because people spend their time and money where it matters most. The results from the survey confirmed the suggested perceived barrier with the highest mean and low standard deviation is "A great deal of work is required of CTE teachers and developing a relationship with business and industry is often neglected" (M = 3.52, SD = 1.16). This suggests that CTE teachers are overwhelmed with the daily task, and adding one more item to the list frequently gets limited or no interest. Therefore,

planning and more in-depth decisions are needed to ensure CTE teachers have the time to build and maintain these relationships.

Further Analysis was done on survey question six, perceived barriers. The researcher divided the proposed barriers into two groups: intrinsic and extrinsic barriers (Figure 4.6). The intrinsic barriers with the high mean are "A great deal of work is required of CTE teachers and developing a relationship with business and industry is often neglected" with (M=3.52, SD=1.16) and "Business and industry inputs are valuable, so I use personal time to maintain relationships" with (M=3.69, SD=1.09). The results align with Bryan & Henry (2012) that maintaining and sustaining an effective school-community relationship is one of the most challenging challenges.

The extrinsic barriers with the highest mean are "The CTE director independently maintains a relationship with the businesses and industries" (M=3.40, SD=1.31), followed by "My work schedule does not provide time to form a relationship with business and industry leaders" (M=3.36, SD=1.32) and "Using the same business and industry partners repeatedly causes burnout and weakens the relationship over time" (M=3.21, SD= 1.25). Having allotted time to complete the required task is a common theme. CTE teachers lack the time to complete the required task.

Using the same business and industry partners repeatedly causes burnout and weakens the relationship, proving Cohen's (2018) argument about employer burnout. Over the years, employers have been asked to serve on advisory boards, advise on initiatives, and provide work-based learning to employees. Unsurprisingly, employers have high burnout rates among intermediaries and industry associations because they are always asked to perform tasks (Cohen, 2018). The best way to avoid burnout is to simultaneously reach many employers and connect

with local or regional intermediaries. However, many rural communities lack industries, limiting learners' access to a wide selection of Career Clusters and Pathways (Cohen, 2018), hence using the same business and industry partners over and over and sometimes to cover several programs.

Conclusions

Data were collected from Alabama CTE teachers on business and industry involvement in programs they are associated with to determine the level of involvement and perceived barriers. Most participants were female, had a graduate or professional degree, one to five years of work experience, and were business management and administration teachers. The following conclusions were based on the findings of this study.

1. CTE teachers with 16-20 years of industry experience have the highest satisfaction level, followed by 21+ years, 6-10 years, 0-5 years, and 6-10 years.
2. Alabama's economy is set to face a shortage of highly skilled workers by 2025-2026. However, on average, CTE teachers indicated that they are satisfied with their relationship with business and industry partners. This indicates that Alabama high school graduates will enter the workforce with high-value credentials and skills needed by business and industry.
3. Overall, results indicated that businesses and industry are involved in Alabama CTE programs. One CTE program indicated extremely involved, four CTE Program indicated moderately involved, nine CTE Programs indicated slightly involved and 2 CTE Programs indicated not involved. Now only time will tell if that involvement provided the skills workers to narrow the skills gap in the economy.
4. Multiple Regression was used to analyze the effect of CTE Programs, Industry Experience, and Teaching Experience on perceived barrier levels. The result showed no statistically significant impact on the perceived Barrier level.
5. The descriptive analysis of CTE Programs, Industry, and Teaching experience revealed that CTE teachers with 1-5 years of industry experience, 0-5 years of teaching

experience, and who are part of the Agriculture, Food & Natural Resources strongly believe the barriers listed are significant. Survey question six revealed that teachers with more teaching experience considered perceived barriers less of a barrier to building and maintaining relationships with business and industry partners.

6. The survey found that CTE teachers are often overwhelmed with their daily tasks and lack time to build and maintain relationships with businesses and industries.
7. Businesses and industries maintain a relationship with directors but not individual teachers may be directly related to the lack of time teachers have and the number of tasks they have to complete.
8. The researcher divided the proposed barriers into intrinsic and extrinsic groups. The intrinsic barriers with the highest mean were "a great deal of work is required of CTE teachers and developing a relationship with business and industry is often neglected" and "Business and industry inputs are valuable, so I use personal time to maintain relationships." The extrinsic barriers with the highest mean were "The CTE director independently maintains a relationship with the businesses and industries" and "My work schedule does not provide time to form a relationship with business and industry leaders." CTE teachers lack the time to complete the required task.
9. There is a high burnout rate among employers due to the fact that they are repeatedly asked to serve on advisory boards, give advice, and provide on-the-job training to students as part of their jobs.

Recommendations

Based on the conclusions, the following recommendations are made:

1. The majority of respondents were females, and they were in business management and administration CTE programs. For a more accurate picture, it would be best if there is increased participation among all CTE programs varying from diverse backgrounds and gender affiliations. More diverse opinions and perspectives will create a more comprehensive research result. It is also important to note that the response rate of male respondents was significantly lower, which could indicate a need for increased outreach to male CTE teachers. A balance representation from each CTE program is recommended to identify an accurate picture of how involved businesses and industries are in each program. The data does not represent the majority with only two participants in the finance cluster. Completing the needs assessment survey outlined in Perkins funds would capture the required information to make informed decisions.
2. The more industry experience a teacher has, the more satisfied they are with business and industry partners. Therefore, recruiting teachers with industry experience seems to be an added bonus for CTE programs. This could result in a better understanding of the skills and qualities employers are looking for and a better sense of how to teach students the necessary skills. Additionally, it could lead to more opportunities for internships and job placements for students.
3. With CTE teachers indicating that they are satisfied with business and industry partners and are involved in their programs, specific time needs to be set aside to foster further relationships for continuous growth and development.

4. The daily task of a CTE teacher can be overwhelming to some teachers; therefore, extending their contract or creating a schedule would allow them sufficient time for relationship building and maintenance.
5. Recommend working closely with the Agriculture, Food & Natural Resources programs to rectify the indicated barriers as they showed the most perceived barriers of all the CTE programs. Identifying and addressing the perceived barriers in this program can enable more students to complete their education with the necessary workforce skills successfully.
6. To avoid burnout among business and industry partners, it is important to reach as many employers as possible and connect with local or regional intermediaries. Therefore, going outside the set georgical area will provide more access to a broader selection of business and industry experts to provide the students with the necessary skills and training in that industry.
7. Consider using a mixed-method approach, including interview and survey questions, to adequately capture teachers' perceptions. Using mixed methods aids in understanding the workings of the relationship, how it works, why it works, and for whom it works.
8. Recommend increasing the sample size in each CTE program for better population representation and more accurate results.
9. Research should be conducted during times when testing is not in session since those are the busiest times for teachers, and time may not allow adequate information to be collected.
10. Limit the number of questions asked on a survey to avoid survey fatigue.

References

Abowitz, K. K. (2000). Making meaning of community in an American high school. *Al fetiti*.

Allman, K. (2021). Career matters: “The great resignation” sweeping workplaces around the world. *LSJ*: *Law Society Journal*, (81), 46–47. https://search.informit.org/doi/10.3316/agis.20211109056610

Amrein-Beardsley, A. (2022). Alabama state department of education. Montgomery, A. L.

Antush, J. C. (2014). Labor and" ed deform": The degradation of teachers' work through standardized testing and the New York City evaluation system. *Monthly Review*, *66*(2), 33.

Barnett, B. G. (2005). Transferring learning from the classroom to the workplace: Challenges and implications for educational leadership preparation. *Educational Considerations*, *32*(2), 9.

Bhandari, P. (2020, June 12). *An introduction to quantitative research*. Scribbr. https://www.scribbr.com/methodology/quantitative-research/

Bland, J. M., & Altman, D. G. (1997). Cronbach's Alpha. *BMJ*, 314, 572-572. doi: https://doi.org/10.1136/bmj.314.7080.572

Brand, B., Valent, A., & Browning, A. (2013). *How career and technical education can help students be college and career ready: A primer*. College and Career Readiness and Success Center.

Brunner, E., Dougherty, S., & Ross, S. (2021). *The effects of career and technical education: Evidence from the Connecticut technical high school system*. National Bureau of Economic Research. http://dx.doi.org/10.3386/w28790

Bryan, J., & Henry, L. (2012). A model for building school–family–community partnerships: Principles and process. *Journal of Counseling & Development, 90*(4), 408–420.

Bui, Q., & Miller, C. C. (2015). The typical American lives only 18 miles from mom. *New York Times*, *23*.

Busteed, B. (2019). Why aren't graduates ready for work? They're the least working generation in US history. *Forbes*. https://www.forbes.com/sites/brandonbusteed/2019/03/29/why-arent-graduates-ready-for-work-theyre-the-least-working-generation-in-us-history/?sh=4abcf18e5e58

Career and technical education. (2016, August 18). https://www2.ed.gov/about/offices/list/ovae/pi/cte/index.html

Cohen, M. D. (2018). A cross-state collaboration on increasing access to industry experts in high school. *Center on Great Teachers and Leaders*.

Cohen, T. R., & Morse, L. (2014). Moral character: What it is and what it does. *Research in organizational behavior*, *34*, 43-61.

Conneely, N., & Hyslop, A. (2018). CTE: Education for a strong economy. *Association for Career and Technical Education (ACTE)*.

Davis, L., & Pollack, S. H. (1995). School-to-work opportunities act. *American Journal of Public Health, 85*(4), 590–591. https://doi.org/10.2105/ajph.85.4.590

Dean, J. C., Adade-Yeboah, V., Paolucci, C., & Rowe, D. A. (2020). Career and technical education: Annotated bibliography. *National Technical Assistance Center on Transition*.

Dougherty, S. M. (2016). Career and technical education in high school: Does it improve student outcomes? Thomas B. Fordham Institute.

De Vise, D. (2011). Study: Two-fifths of high school graduates are unprepared for college or the workforce. *The Washington post*. Retrieved from http://www.washingtonpost.com/blogs/college-inc/post/study-two-fifths-of-high-schoolgraduates-are-unprepared/2011/12/12/gIQArZKnpO_blog.html.

ExcelinEd / Burning Glass Technologies. (2019). *Report 1: A National Landscape of High School Student Credential Attainment Compared to Workforce Demand*. CredentialsMatter.org. https://excelined.org/wp-content/uploads/2019/05/ExcelinEdBurningGlassTechnologies.CredentialsMatterNationalLandscapeofHighSchoolCredentialAttainmentComparedtoWorkforceDemand.May2019.pdf

Field, A. P. (2000). *Discovering statistics using SPSS for Windows:* advanced techniques for the beginner. London: Sage

Figgis, J. (1998). Benefits to business through school-industry partnerships. Surry Hills: Dusseldorp Skills Forum.Friedel, J. N. (2011). Where has vocational education gone? The impact of federal legislation on the expectations, design, and function of vocational education as reflected in the reauthorization of the Carl D. Perkins Career and Technical Education Act of 2006. *American Educational History Journal*, *38*(1/2), 37.

Gordon, H. R. D. (2008). *The history and growth of career and technical education in America*. Waveland Press, Inc.

Gordon, H. R., & Schultz, D. (2020). *The history and growth of career and technical education in America*. Waveland press.

Ghost, S. (2016). VET in schools: The needs of industry. Unicorn: *Journal of the Australian College of Educators, 28*(3), 61-64.

Griggs, D. M., Kochan, F. K., & Reames, E. H. (2017). Investigating the benefits of a school/industry partnership focused on overcoming the skills gap and fostering student success. *Southeast Journal on Education Administration*, *17*(2), 71-87.

Gross, J., Haines, S. J., Hill, C., Francis, G. L., Blue-Banning, M., & Turnbull, A. P. (2015). Strong School-Community Partnerships in Inclusive Schools Are" Part of the Fabric of the School... We Count on Them". *School Community Journal*, *25*(2), 9-34.

Guest, C. (2019, November 7). 5 qualities of a successful partnership. *Cvent*. https://www.cvent.com/en/blog/events/5-qualities-successful-partnership

Hands, C. (2005). It's who you know" and" what you know: The process of creating partnerships between schools and communities. *School Community Journal*, *15*(2), 63-84.

Harper, B. (2020, January 28). Alabama headed for jobs crisis as skills disappear, study says. *Montgomery Advertiser*. https://www.montgomeryadvertiser.com/story/news/2020/01/28/alabama-headed-jobs-crisis-skills-disappear-study-says/4592698002/

Holzer, H. J. (2017). The role of skills and jobs in transforming communities. *Cityscape, 19(1),* 171-190. http://spot.lib.auburn.edu/login?url=https://www.proquest.com/scholarly-journals/role-skills-jobs-transforming-communities/docview/1915835299/se-2

Hyslop, A. (2022). *Cte in Alabama*. Association for Career and Technical Education. https://www.acteonline.org/wp-content/uploads/2022/03/Alabama-CTE-Fact-Sheet-2022.pdf

Jhons, L (2017). Governor Ivey moves Alabama's workforce development efforts forward. *Office of the Governor of Alabama*.

https://governor.alabama.gov/newsroom/2019/07/governor-ivey-moves-alabamas-workforce-development-efforts-forward/

Kisner, M. J., Mazza, M. J., & Liggett, D. R. (1997). Building partnerships. *New directions for community colleges, 1997*(97), 23-28.

Klein, B. (1995). The economics of franchise contracts. *Journal of corporate finance*, *2*(1-2), 9-37.

MacQueen, K. M., McLellan, E., Metzger, D. S., Kegeles, S., Strauss, R. P., Scotti, R., & Trotter, R. T. (2001). What is community? An evidence-based definition for participatory public health. *American journal of public health*, *91*(12), 1929-1938.

Maknun, J., & Rahmawati, Y. (2022). Improving teacher competence through industrial experience practice on the teacher professional education (ppg) program to support industry-based learning in vocational high schools. In *4th International Conference on Innovation in Engineering and Vocational Education (ICIEVE 2021)* (198-201). Atlantis Press.

Meeder, H., & Pawloswki, B. (2020). Preparing our students for the real world: the education shift our children and future demand. *National Center for College and Career Transitions, Columbia. https://www. nc3t. com/wp-content/uploads/2020/02/Preparing-Our-Students-for-the-Real-World-021720. pdf*.

Mills, D., & Whitney, M. (2012). Partnerships. *The career pathways effect: Linking education and economic prosperity*, 123-147. Communications and NASDCTEc.

Moore, G. (2003). The sixteen theorems of SAE. *Agricultural Eduation Magazine*, *75*(6), 20-21.

Needleman, S. E. (2014, July 9). Skills shortage means many jobs go unfilled. *The Wall Street Journal*. https://www.wsj.com/articles/small-business-owners-work-to-fill-job-openings-1404940118

Ogden, W. R. (1990). Vocational education: A historical perspective. *The High School Journal*, *73*(4), 245-251.

Osterman, P. (1995). Work/Family Programs and the Employment Relationship. *Administrative Science Quarterly*, *40*(4), 681–700. https://doi.org/10.2307/2393758

Pawloswki, B., & Katz, C. (2014). Employer engagement toolkit. Columbia, Maryland: *National Center for College and Career Transitions*.

Pawloswki, B., & Meeder, H. (2012). Building advisory boards that matter. Alexandria, Virginia: *Association for Career and Technical Education*.

Pimentel, J. L. (2010). A note on the usage of Likert Scaling for research data analysis. *USM R&D Journal*, *18*(2), 109-112.

Phillips, S. D., Blustein, D. L., Jobin-Davis, K., & White, S. F. (2002). Preparation for the school-to-work transition: The views of high school students. J*ournal of Vocational Behavior, 61*(2), 202-216.

Price, J. H., & Murnan, J. (2004). Research limitations and the necessity of reporting them. *American Journal of Health Education*, *35*(2), 66.

Programs of Study | Advance CTE - Career Tech. https://careertech.org/programs-study

Prosser, C. A. (2013). Prosser's sixteen theorems on vocational education: A basis for vocational philosophy. Retrieved from http://morgancc.edu/docs/io/Glossary/Content/PROSSER

Prosser, C. A. & Quigley, T. H (1949). “Vocational education in a democracy” *American Technical Society*, Chicago, Illinois.

Prosser Career Education Center. (2021, January 7). Prosser Career Education Center - Ensuring College & Career Readiness. https://prosser.nafcs.k12.in.us/who-was-ca-prosser/

Reiss, S. (2012). Intrinsic and extrinsic motivation. Teaching of psychology, 39(2), 152-156.

Rivkin, J. (2013). Partial credit: how america's school superintendents see business as a partner. Report, Harvard Business School. Retrieved from: https://www.hbs.edu/ris/Publication%20Files/Partial%20Credit_1887c057-837f-4692-a1f4-65b41a74d023.pdf

Rosen, R., Visher, M., & Beal, K. (2018). Career and Technical Education: Current Policy, Prominent Programs, and Evidence. *MDRC*.

Salkind, N. J. (2013). *Statistics for people who (think they) hate statistics*. Thousand Oaks, CA: Sage Publications.

Smith, M. (2013). *Handbook for career and technical education workforce development advisory councils and advisory committees.*

Stern, D., Dayton, C., & Raby, M. (2010). Career academies: A proven strategy to prepare high school students for college and careers. *Career Academy Support Network*.

Stone III, J. R. (2014). More than one way: The case for high-quality CTE. *American Educator*, *38*(3), 4. https://eric.ed.gov/?id=EJ1044087.

Sublett, C. (2019). *Time and Place: An examination of career and technical education course taking and labor markets across two high school cohorts*. American Enterprise Institute.

Symonds, W. C., Schwartz, R., & Ferguson, R. F. (2011). Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century. Cambridge, MA. *Harvard University Graduate School of Education*.

U.S. Department of Education, "Carl D. Perkins Career and Technical Education Act: Report to Congress on State Performance Program Year 2012–2013" (February 2016), retrieved September 6, 2022, https://s3.amazonaws.com/PCRN/docs/1830-0029-Perkins_V_State_Plan_Guide-Expires_4-30-22.pdf

U.S. Department of Education. (2019). CTE data story: insights into how CTE can improve students' income after they graduate. https://www2.ed.gov/datastory/cte/index.html

Watters, J., Hay, S., Dempster, N., & Pillay, H. (2013). School industry partnerships: An innovative strategy for vocational education. In *Proceedings of the ECER VETNET Conference 2013, Second edition* (pp. 1-14). Wissenschaftsforum Bildung und Gesellschaft eV.

Willems, P. P., & Gonzalez-DeHass, A. R. (2012). School-community partnerships: Using Authentic Contexts to Academically Motivate Students. *School Community Journal*, *22*(2), 9-30.

Walters, N. J. (1986). The acts, economic and political conditions and committee work that led to the passage of the smith-hughes act of 1917.

Ziegler, William. "Putting your community into school learning." *The Education Digest* 67, no. 3 (2001): 51.

APPENDIX

Appendix A. IRB Approval

Appendix B. Survey Instrument

Appendix C. Information Letter

Appendix D. Email Recruitment Letter

Appendix E: Follow-Up Letter

Appendix F: Tables

Appendix G: Figures

APPENDIX A. IRB Approval

Revised 07/12/2022

AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUMAN SUBJECTS

PROTOCOL REVIEW FORM
FULL BOARD or EXPEDITED REVIEW

For assistance, contact: **The Office of Research Compliance (ORC)**
Phone: **334-844-5966** E-Mail: IRBAdmin@auburn.edu Web Address: http://www.auburn.edu/research/vpr/ohs
Submit completed form and supporting materials as one PDF through the IRB Submission Page
Handwritten forms are not accepted. Where links are found hold down the control button (Ctrl) then click the link.

1. Proposed Start Date of Study:1/30/2023 Today's Date: **January 11, 2023**
Submission Status (Check One): ☒ New ☐ Revisions (to address IRB Review Comments)
Proposed Review Category (Check One): ☐ Full Board (greater than minimal risk) ☒ Expedited
If Expedited, Indicate Category(ies) ((Link to Expedited Category Review Sheet) 7

2. Project Title: **Examining Business and Industry Involvement in Alabama CTE programs, Teacher Satisfaction, and Perceived Barriers**

3. Principal Investigator (PI): Shashauna Bloomfield Degree(s): PhD Career and Technical Education
Rank/Title: Graduate Student Department/School: Curriculum and Teaching
Role/responsibilities in this project: Principal Investigator
Preferred Phone Number: 256-417-0866 AU Email: ssw0017@auburn.edu

Faculty Advisor Principal Investigator (if applicable): **Dr. Elisha Wohleb**
Rank/Title: Professor Department/School: Curriculum and Teaching
Role/responsibilities in this project: **University Supervisor**
Preferred Phone Number: **334-844-8724** AU Email: wohleec@auburn.edu

Department Head: Paul Fitchett Department/School: Curriculum and Teaching
Preferred Phone Number: **334-844-4434** AU Email: pgf0011@auburn.edu
Role/responsibilities in this project: N/A

4. Funding Support: ☒ N/A ☐ Internal External Agency: N/A Pending ☐ Received ☐
For federal funding, list funding agency and grant number (if available): N/A

5. a) List any contractors, sub-contractors, and other entities associated with this project: N/A

b) List any other AU IRB approved protocols associated with this study and describe the association: N/A

c) List any other institutions associated with this study and submit a copy of their IRB approval(s): N/A

Protocol Packet Checklist

Check all applicable boxes. A completed checklist is required.

☒ **Protocol Review Form** (All required signatures included and all sections completed)
(Examples of appended documents are found on the website: https://cws.auburn.edu/OVPR/pm/compliance/irb/sampledocs)

☒ **CITI Training Certificates** for key personnel

☒ **Consent Form or Information Letter** and any releases (audio, video or photo) that participants will review and/or sign

☒ **Appendix A** "Reference List"

☒ **Appendix B** if e-mails, flyers, advertisements, social media posts, generalized announcements or scripts, etc., will be used to recruit participants.

☒ **Appendix C** if data collection sheets, surveys, tests, other recording instruments, interview scripts, etc. will be used for data collection. Attach documents in the order they are listed in item 13c.

Continued on Page 2

The Auburn University Institutional Review Board has approved this Document for use from 02/08/2023 to ----------
Protocol # 23-021 EX 2302

APPENDIX B. Survey Instrument

Business and Industry Involvement

Questions 1- 3 address local businesses and industry leaders' involvement with Alabama CTE programs. The business and industry involvement consist of employers and business leaders partnering with CTE programs in local communities to facilitate students' success and the community's economic development.

1. In your CTE program, overall rate how involved local business and industry leaders are in each of the following.

How involved are local business and industry leaders in	Not at all Involved	Slightly Involved	Moderately Involved	Extremely Involved
	1	2	3	4
Serving on the Advisory Committee				
Proposing changes in the curriculum				
Reviewing content standards				
Reviewing instructional materials				
Providing expert advice on the program's relevance				
Identifying the needs of the community				
Integrating community needs into the program curriculum				
Making recommendations that will strengthen and expand the program				
Suggesting credentials for the program				

Making suggestions on the appropriateness of the facilities

Evaluating safety regulations and requirements

Providing sponsorship for equipment or supplies

Providing real-world, project-based learning opportunities for students

Suggesting improvements to increase students' success

Identifying the soft skills gap

Identifying hard (technical) skills gap

Providing in-service training for CTE faculty and staff in the department

Providing guidance for teachers

Providing career guidance to students

Identifying entry-level jobs for the students

Providing on-the-job training for students

Providing mentorship for students

Supporting the career and technical student organization

2. Please include any other ways businesses and industries are involved in your program.

_____

_____

_____

3. What feedback did you receive from your program's local needs assessment?_____

_____

_____

Teacher Satisfaction

Teachers' satisfaction level is determined by their relationships with business and industry leaders and their contributions to the CTE program.

4. Using the following criteria, rate your level of satisfaction with your relationship with business and industry leaders.

How satisfied are you with	Very Dissatisfied 1	Dissatisfied 2	Neither 3	Satisfied 4	Very Satisfied 5
The service business and industry provide on the advisory committee					
The proposed changes to the curriculum					
The ease of contacting business and industry leaders directly					
The results of scheduled meetings					
The timing of scheduled meetings					
The suggestions made for improving student success					

The expert advice provided based on community needs

The provided on-the-job training for students

The advertising of CTE program in the community

The professional development they recommend for you

The expressed interest in the program by business and industry leaders

The equipment and supplies recommended to increase student success.

The equipment and supplies sponsored

Their participation in the student organization

The career guidance activities provided for students

The scholarships offered to students

Perceived Barriers

The perceived barriers are determined by the level of difficulty encountered in maintaining relationships with local business and industry leaders.

5. Please rate these statements as perceived barriers that affect the relationship between Alabama CTE teachers and business and industry leaders.

Rate these statements as perceived barriers between Alabama CTE teachers and business leaders	Strongly Disagree 1	Disagree 2	Neither Agree nor Disagree 3	Agree 4	Strongly Agree 5
My work schedule does not provide time to form a relationship with business and industry leaders.					
My industry knowledge is sufficient to operate without needing business or industry relationships.					
It is not necessary to develop a relationship with local leaders because the written curriculum meets their needs.					
The CTE director independently maintains a relationship with the businesses and industries					
I have a supportive CTE director who encourages me to develop relationships with business and industry leaders.					
The businesses and industries in my area are not interested in a relationship with my program.					
I am unable to form a relationship with businesses and industry due to their busy schedules.					
My program is well known in my area, it is not necessary to maintain business and industry relationships.					
Businesses and industries maintain relationships with administrators, not with individual teachers.					
Too much time is required to maintain relationships with businesses and industries.					

Relationships with businesses and industries are of little benefit to my program.

Relationships are only created when the businesses and industry can directly benefit from my program.

A great deal of work is required of CTE teachers and developing a relationship with business and industry is often neglected.

Using the same business and industry partners repeatedly causes burnout and weakens the relationship overtime.

The business and industry leaders tend to overextend their reach when it comes to advising, which ultimately results in a breakdown in the relationship.

Business and industry inputs are valuable, so I use personal time to maintain relationships.

Business and industry value the partnership and are committed to maintaining a close working relationship.

6. Please make suggestions for improving your program's relationships with business and industry._____

_____

_____

Demographics

The following questions are in regard to your academic and industry experience and the demographic information about your program

1. What career and technical program are you associated with?

    [ ] Agriculture, Food & Natural Resources

    [ ] Architecture & Construction

    [ ] Arts, A/V Technology & Communications

    [ ] Business Management & Administration

    [ ] Education & Training

    [ ] Finance

    [ ] Government & Public Administration

    [ ] Health Science

    [ ] Hospitality & Tourism

    [ ] Human Services

    [ ] Information Technology

    [ ] Law, Public Safety, Corrections & Security

    [ ] Manufacturing

    [ ] Marketing

    [ ] Science, Technology, Engineering & Mathematics

    [ ] Transportation, Distribution & Logistics

2. Do you have any industry experience in the program you teach?

    a. 1-5years

    b. 6-10 years

c. 11-15 years

d. 16-20 years

e. 21+ years

f. None

3. How long have you been teaching?

a. 0-5years

b. 6-10 years

c. 11-15 years

d. 16-20 years

e. 21+ years

4. How would you describe your gender?

[ ] Male

[ ] Female

[ ] Prefer not to answer

5. What is the highest education level you have attained?

[ ] Career/Technical Certificate

[ ] Associate's

[ ] Bachelor's

[ ] Master's

[ ] Professional

[ ] Doctorate

APPENDIX C. Information Letter

Auburn University

Department of Curriculum and Teaching

(NOTE: DO NOT SIGN THIS DOCUMENT UNLESS AN IRB APPROVAL STAMP WITH CURRENT DATES HAS BEEN APPLIED TO THIS DOCUMENT.)

INFORMATION LETTER

For a Research Study entitled

"Examining Business and Industry Involvement in Alabama CTE Programs, Teacher Satisfaction and Perceived Barriers?"

You are invited to participate in a research study to examines how business and industry leaders are involved with Alabama CTE programs, examines teacher satisfaction with business and industry leaders, and identifies barriers to the relationship between Alabama CTE teachers and business and industry leaders. This study is being conducted by Shashauna Bloomfield, Ph.D. student, under the direction of Dr. Elisha Wohleb, Clinical Professor, in the Auburn University Department of Curriculum and Teaching. You are invited to participate because you are a CTE educator in Alabama public school and is over the age of 19.

What will be involved if you participate? Your participation is completely voluntary. If you decide to participate in this study, you will be asked to answer 8 questions (3 Likert and 5 multiple choice questions). Your total time commitment will be approximately 15 minutes.

Are there any risks or discomfort? There are no risks associated with this study. Your time is valuable and will be considered and respected during this process. The data will be collected confidentially, and the information provided will be included anonymously in the final research paper. We will protect your privacy and the data you provide by not collecting emails or IP addresses. Data will only be accessed by the researchers. The anonymous data collected will be protected by storing and maintaining data on password-protected computers.

Are there any benefits to yourself or others? Your full cooperation would be appreciated as this research will help to shape future CTE decisions, students' success, and economic development. You will be assisting in providing information that will aid in determining if businesses and industries are involved in CTE programs, teacher satisfaction, and perceived barriers. We/ I cannot promise you that you will receive any or all other benefits described.

Will you receive compensation for participating? While your time, input, and commitment is appreciated compensation for participation will not be provided.

Are they any costs? If you decide to participate, you are not expected to occur any costs resulting in participation.

If you change your mind about participating, you can withdraw at any time by exiting the survey without submitting it or by closing the internet browser. Once you have submitted anonymous data, it cannot be withdrawn since it will be unidentifiable. There will be no repercussions for choosing to withdraw from the study. Your decision about whether to participate or to stop participating will not jeopardize your future relationship with Auburn University, the Department of Curriculum and Teaching, or the Career and Technical Education program.

Any data obtained in connection with this study will remain anonymous. We will protect your privacy and the data you provide by not collecting personal information. Information collected through your participation may be used to fulfill an educational requirement.

If you have questions about this study, please contact Shashauna Bloomfield at sw0017@auburn.edu or Dr. Elisha Wohleb at wohleec@auburn.edu

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334)-844-5966 or e-mail at IRBadmin@auburn.edu or lRBChair@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, PLEASE CLICK ON THE LINK BELOW. YOU MAY PRINT A COPY OF THIS LETTER TO KEEP.

__Shashauna Bloomfield 02/09/2023_

Investigator Date

_____

Co-Investigator Date

Link to the Survey

APPENDIX D. Email Recruitment Letter

You are invited to participate in a research study to examines how business and industry leaders are involved with Alabama CTE programs, examines teacher satisfaction with business and industry leaders, and identifies barriers to the relationship between Alabama CTE teachers and business and industry leaders. This study is being conducted by Shashauna Bloomfield, Ph.D. student, under the direction of Dr. Elisha Wohleb, Clinical Professor, in the Auburn University Department of Curriculum and Teaching. You are invited to participate because you are a CTE educator in Alabama public school and is over the age of 19.

Your participation is completely voluntary. If you decide to participate in this study, you will be asked to answer 8 questions (3 Likert and 5 multiple choice questions). Your total time commitment will be approximately 15 minutes.

There are no risks associated with this study. The data will be collected confidentially, and the information provided will be included anonymously in the final research paper. We will protect your privacy and the data you provide by not collecting emails or IP addresses. Data will only be accessed by the researchers. The anonymous data collected will be protected by storing and maintaining data on password-protected computers.

If you decide to participate, please click on the link: **Survey Link**

For additional information about the research, click on the link below to the detailed information letter. **Information Letter Link**

Your participation is encouraged, as the data can be valuable in making future decisions for career and technical education, student success, and the economy. Your input is vital to the success of this research study. If you change your mind about participating, you can withdraw at any time by exiting the survey without submitting it or by closing the internet browser. There will be no repercussions for choosing to withdraw from the study. Your decision about whether to participate or to stop participating will not jeopardize your future relationship with Auburn University, the Department of Curriculum and Teaching, or the Career and Technical Education program.

If you have questions about this study, please contact Shashauna Bloomfield at sw0017@auburn.edu or Dr. Elisha Wohleb at wohleec@auburn.edu.

The Auburn University Institutional Review Board has approved this document for use on from

_____ *to* _____. *Protocol #* _____

Thank you in advance for your time and participation!

Shashauna Bloomfield

APPENDIX E. Follow-up Email

Subject: Your input is needed and is important
Dear Colleague,

Thank you for being a dedicated Alabama CTE teacher.

Recently, I invited you to participate in a study to determine the level of involvement of business and industry leaders in Alabama CTE programs, teacher satisfaction with the partnership, and identify barriers to connecting to the partnership.

This survey will take less than 15 minutes to complete. As a result of your feedback, we will gain a deeper understanding of the involvement of business and industry leaders in CTE programs, your level of satisfaction with the partnership, and some barriers to its success. This study can be helpful regarding how CTE partners with businesses and industries. Schools can use the information from this study to better prepare students for in-demand, high-level jobs that will impact the economy and narrow the skills gap in Alabama by partnering with businesses and industry.

Your participation is voluntary; therefore, you can entirely revoke your consent without repercussions. Your decision to opt-out of the survey will not jeopardize your future relations with Alabama's school system, Auburn University, the Department of Curriculum and Teaching, or the Career and Technical Education program.

Thank you,
Shashauna Bloomfield

APPENDIX F: Tables

Table 1

Seven of Prosser's Theorems on Vocational Education

Theorems	Focus	Description
Theorem One	Work Environment	It is efficient for vocational education to be taught in an environment like the workplace, where a learner will eventually work.
Theorem Two	Industry Standards	Practical vocational training is only possible when the training jobs are carried out using the same tools, machines, and operations as in the occupation.
Theorem Nine	Industry Needs	Vocational education must recognize conditions and prepare individuals to meet the market's demands.
Theorem Ten	Real World Jobs	Learners can establish process habits more effectively when the training is based on actual work instead of exercises or fictitious tasks.
Theorem Eleven	Partnership	The only reliable content source for specialized training is the experience of masters in the field.
Theorem Twelve	Aligning curriculum	All occupations contain a body of content unique to their field, general teaching will not help develop a competent worker.

Theorem Fifteen	Adaptability	A flexible and fluid administration will make vocational education more efficient in proportion to its elasticity and fluidity rather than rigidity and standardization.

Note. Seven of sixteen Theorems Dr. Prosser's published on Vocational Education.

Table 2

Data Analysis Plan

Research Question	Survey Question & Associated Variable	Variables	Statistical Test(s)
1.How do CTE teachers perceive business and industry involvement in Alabama's Career and Technical Education programs?	(Likert-type Scale): [Business and Industry Involvement] 1. In your CTE program, rate how involved are local business and industry leaders in each of the following.	Level of involvement (DV)	Descriptive Statistics: Mean, Standard Deviation. ANOVA One-Way ANOVA: CTE Programs * level of involvement
	(Multiple Choice): [Demographics] 1. What career and technical program (s) are you associated with? Please select all that apply.	CTE Programs (IV)	Descriptive Statistics Mean, Mode, Standard
2. To what extent are CTE teachers of Alabama satisfied with their relationship with business and industry based on the teachers' industry experience and teaching experience?	(Likert-type Scale): [Teacher Satisfaction] 2. Using the following criteria, rate your level of satisfaction with your relationship with business and industry leaders.	Level of satisfaction (DV)	Descriptive Statistics: Mean, Standard Deviation ANOVA One-Way ANOVA:

			Level of satisfaction * Industry experience * * Teaching experience
	(Multiple Choice): [Demographics] 2. Do you have any industry experience in the program you teach?	Industry Experience (IV)	Descriptive Statistics Mean, Standard
	(Multiple Choice): [Demographics] 3. How long have you been teaching?	Teaching Experience (IV)	Descriptive Statistics Mean, Standard Deviation
3.What perceived barriers affect the relationship between Alabama CTE teachers and the businesses and industry leaders based on the CTE programs, years of industry experience, and years of teaching experience?	(Likert-type Scale): [Perceived Barriers] 3. Please rate these statements as perceived barriers that affect the relationship between Alabama CTE teachers and business and industry leaders.	Perceived Barriers (DV)	Descriptive Statistics: Mean, Standard Deviation ANOVA One-Way ANOVA: Perceived barriers * CTE Programs * Industry experience* Teaching experience
	(Multiple Choice): [Demographics]	CTE Programs (IV)	Descriptive Statistics Mean, Standard Deviation

	1. What career and technical program (s) are you associated with? Please select all that apply.		
	(Multiple Choice): [Demographics] 2. Do you have any industry experience in the program you teach?	Industry Experience (IV)	Descriptive Statistics Mean, Standard Deviation
	(Multiple Choice): [Demographics] 3. How long have you been teaching?	Teaching Experience (IV)	Descriptive Statistics Mean, Standard Deviation

Note. Plans for analyzing the data collected.

Table 3

Cronbach Reliability Test of Likert-type Scale Questions

Cronbach Reliability Test		
Question	Cronbach's Alpha	Subscale Items
Level of Involvement	.98	24
Teacher Satisfaction Level	.97	16
Perceived Barriers impacting Partnerships	.87	18

Note. Reliability test the consistency of the Likert Scale Questions.

Table 4

Business and Industry Involvement Level by CTE Programs of Likert subscale items

	Involvement Level		
CTE Programs	*n*	*M*	*SD*
Agriculture, Food & Natural Resources	5	2.65	1.03
Architecture & Construction	12	2.23	.74
Arts, A/V Technology & Communications	4	2.26	1.01
Business Management & Administration	20	3.10	.82
Education & Training	11	2.84	1.02
Finance	2	3.62	.35
Government & Public Administration	4	2.13	.94
Health Science	10	2.17	.62
Hospitality & Tourism	2	2.38	1.25
Human Services	1	1.71	.
Information Technology	5	2.33	.60
Law, Public Safety, Corrections & Security	2	1.71	1.00
Manufacturing	3	3.06	.67
Marketing	7	2.55	.56
Science, Technology, Engineering & Mathematics	13	2.56	.90

Transportation, Distribution & Logistics	1	2.38	.
Total	102	2.59	.86

Note. Descriptive Statistics of the Likert-type scale for Business and Industry Involvement Level by CTE Programs.

Table 5

One-Way Analysis of Variance of Level of Involvement by CTE Programs

Source	*SS*	*df*	*MS*	*F*	*p*
Between Groups	16.114	15	1.074	1.559	.103
Within Groups	59.263	86	.689		
Total	75.377	101			

$^{*}p < .05$. $^{**}p < .01$.

Note. Find out the Level of involvement between the CTE Programs.

Table 6

Satisfaction level based on Teachers' Industry Experience and Teaching Experience

Industry Experience	Teaching Experience	*M*	*SD*	n
1-5 years	0-5 years	3.73	1.11	17
	6-10 years	3.36	.86	6
	11-15 years	3.41	1.34	5
	16-20 years	3.25	2.30	2
	21+ years	3.54	.80	3
	Total	3.57	1.09	33
6-10 years	0-5 years	2.38	1.94	2
	6-10 years	3.71	1.01	6
	11-15 years	3.44	.	1
	16-20 years	4.69	.	1
	21+ years	3.69	.97	2
	Total	3.54	1.13	12

11-15 years	6-10 years	3.67	.59	3
	11-15 years	3.23	.88	3
	16-20 years	4.00	.	1
	21+ years	3.19	.	1
	Total	3.48	.64	8
16-20 years	0-5 years	2.99	1.11	5
	6-10 years	3.16	.40	5
	11-15 years	3.69	.	1
	16-20 years	4.54	.51	7
	Total	3.68	.97	18
21+ years	0-5 years	4.22	.51	4
	6-10 years	3.94	.66	5
	11-15 years	3.19	1.21	5
	16-20 years	3.25	2.12	2
	21+ years	3.79	.78	3
	Total	3.70	.98	19
None	0-5 years	3.33	.58	3
	6-10 years	3.56	.18	2
	11-15 years	3.25	.18	2
	21+ years	3.68	1.29	5
	Total	3.50	.84	12
Total	0-5 years	3.55	1.10	31
	6-10 years	3.56	.73	27
	11-15 years	3.31	.97	17
	16-20 years	4.11	1.15	13
	21+ years	3.64	.89	14
	Total	3.59	.98	102

Note. Descriptive Statistic of the Likert subscale items on Satisfaction level based on Teachers' Industry Experience and Teaching Experience.

Table 7

Teachers' Satisfaction Level Based on Satisfaction Likert Subscale Items

Satisfaction Level subscale Items	*n*	*M*	SD
The service business and industry provide on the advisory committee	102	3.77	1.10

The ease of contacting business and industry leaders directly	102	3.75	1.17
The timing of scheduled meetings	102	3.75	1.18
The expert advice provided based on community needs	102	3.73	1.15
Valid N (listwise)	102		

Note. Satisfaction Level Activities with the highest mean and low standard deviation

Table 8

ANOVA-Teaching Experience & Industry Experience Effect on Teacher Satisfaction Level

Source	*SS*	*df*	*MS*	*F*	*p*	N^2
Corrected Model	18.86[a]	26	.725	.699	.846	.195
Intercept	756.86	1	756.86	729.58	<.001	.907
Industry Experience	.52	5	.10	.10	.99	.007
Teaching Experience	2.70	4	.68	.65	.63	.034
Industry Experience * Teaching Experience	13.29	17	.78	.75	.74	.146
Error	77.81	75	1.04			
Total	1414.90	102				
Corrected Total	96.66	101				

R Squared = .195 (Adjusted R Squared = -.084)$_a$

Computed using alpha = .05$_b$

Note. Teaching Experience & Industry Experience Effect on Teacher Satisfaction Level

Table 9

Descriptive Analysis of Likert subscale items on Perceived Barriers Affecting CTE Programs

Perceived Barriers	*M*	*SD*
A great deal of work is required of CTE teachers and developing a relationship with business and industry is often neglected.	3.52	1.16
I have a supportive CTE director who encourages me to develop relationships with business and industry leaders.	1.99	1.14

n = 102

Note. Perceived barriers affecting CTE programs.

Table 10

Perceived Barriers based on Industry Experience and Teaching Experience

Industry Experience	Teaching Experience	*M*	*SD*	*n*
1-5 years	0-5 years	2.98	.83	17
	6-10 years	2.98	.41	6
	11-15 years	3.26	.76	5
	16-20 years	4.02	.67	2
	21+ years	2.44	.45	3
6-10 years	0-5 years	3.06	.63	2
	6-10 years	2.61	.34	6

	11-15 years	3.00	.	1
	16-20 years	2.89	.	1
	21+ years	2.92	.27	2
11-15 years	0-5 years	2.54	.69	3
	6-10 years	2.56	.	1
	11-15 years	2.54	.69	3
	16-20 years	2.56	.	1
	21+ years	3.00	.	1
16-20 years	0-5 years	2.52	.77	5
	6-10 years	2.89	.30	5
	11-15 years	3.00	.	1
	16-20 years	2.44	.98	7
	21+ years	0	0	0
21+ years	0-5 years	2.42	.78	4

	6-10 years	2.96	1.03	5
	11-15 years	2.60	.61	5
	16-20 years	2.64	.20	2
	21+ years	2.67	.56	3
None	0-5 years	2.98	.20	3
	6-10 years	3.11	.08	2
	11-15 years	2.53	.12	2
	16-20 years	0	0	0
	21+ years	2.83	1.00	5

Note. Perceived Barriers Based on Industry Experience and Teaching Experience

Table 11

Perceived Barriers Based on Teaching Experience and CTE Program

		Perceived Barriers		
Teaching Experience	CTE Programs	*M*	*SD*	*n*
0-5 years	Agriculture, Food & Natural Resources	3.56	1.18	2
	Architecture & Construction	3.39	.16	2

	Arts, A/V Technology & Communications	3.07	.67	3
	Business Management & Administration	2.96	.93	5
	Education & Training	2.52	.70	3
	Finance	2.83	.	1
	Government & Public Administration	2.00	.63	2
	Health Science	2.68	.72	6
	Information Technology	3.17	.	1
	Law, Public Safety, Corrections & Security	2.86	1.22	2
	Science, Technology, Engineering & Mathematics	2.71	.86	4
	Total	2.84	.76	31
6-10 years	Agriculture, Food & Natural Resources	3.17	.	1
	Architecture & Construction	2.89	.71	5
	Arts, A/V Technology & Communications	2.22	.	1
	Business Management & Administration	2.78	.36	5
	Education & Training	2.93	1.13	3
	Government & Public Administration	3.06	.	1
	Health Science	2.89	.	1
	Manufacturing	2.64	.20	2
	Marketing	2.97	.32	4
	Science, Technology, Engineering & Mathematics	3.00	.73	3
	Transportation, Distribution & Logistics	3.06	.	1
	Total	2.88	.53	27
11-15 years	Architecture & Construction	2.57	.38	4

	Business Management & Administration	3.18	.98	4
	Health Science	3.22	.31	2
	Information Technology	2.63	.42	3
	Manufacturing	1.78	.	1
	Science, Technology, Engineering & Mathematics	2.94	.40	3
	Total	2.82	.64	17
16-20 years	Architecture & Construction	2.78	.	1
	Business Management & Administration	2.64	1.22	4
	Education & Training	2.54	.18	4
	Finance	4.50	.	1
	Health Science	1.44	.	1
	Hospitality & Tourism	3.56	.	1
	Science, Technology, Engineering & Mathematics	2.89	.	1
	Total	2.76	.92	13
21+ years	Agriculture, Food & Natural Resources	2.44	.55	2
	Business Management & Administration	2.08	.98	2
	Education & Training	3.17	.	1
	Government & Public Administration	3.00	.	1
	Hospitality & Tourism	2.78	.	1
	Human Services	2.72	.	1
	Information Technology	1.28	.	1
	Marketing	2.65	.62	3
	Science, Technology, Engineering & Mathematics	3.06	.71	2
	Total	2.58	.67	14

Total	Agriculture, Food & Natural Resources	3.03	.86	5
	Architecture & Construction	2.86	.55	12
	Arts, A/V Technology & Communications	2.86	.69	4
	Business Management & Administration	2.81	.86	20
	Education & Training	2.70	.65	11
	Finance	3.67	1.18	2
	Government & Public Administration	2.51	.70	4
	Health Science	2.68	.73	10
	Hospitality & Tourism	3.17	.55	2
	Human Services	2.72	.	1
	Information Technology	2.47	.76	5
	Law, Public Safety, Corrections & Security	2.86	1.22	2
	Manufacturing	2.35	.52	3
	Marketing	2.83	.46	7
	Science, Technology, Engineering & Mathematics	2.90	.60	13
	Transportation, Distribution & Logistics	3.06	.	1
	Total	2.80	.69	102

Note. Perceived Barriers of the Likert subscale items based on Teaching Experience and CTE Program

Table 12

Cronbach Reliability Test of Likert Scale Questions

Cronbach Reliability Test		
Question	Cronbach's Alpha	Subscale Items

Intrinsic Barriers	.769	8
Extrinsic Barriers	.772	10

Note. Reliability test the consistency of the Likert Scale Questions.

Table 13

Perceived Barriers affecting CTE Programs grouped by Intrinsic and Extrinsic

	Barriers	
	M	*SD*
Intrinsic		
The businesses and industries in my area are not interested in a relationship with my program.	2.80	1.27
My program is well known in my area, it is not necessary to maintain business and industry relationships.	2.61	1.29
Too much time is required to maintain relationships with businesses and industries.	2.74	1.30
Relationships with businesses and industries are of little benefit to my program.	2.24	1.31
A great deal of work is required of CTE teachers and developing a relationship with business and industry is often neglected.	3.52	1.16
My industry knowledge is sufficient to operate without needing business or industry relationships.	2.73	1.28
It is not necessary to develop a relationship with local leaders because the curriculum, as written, meets their needs.	2.06	1.12
Business and industry inputs are valuable, so I use personal time to maintain relationships.	3.69	1.09
Extrinsic		

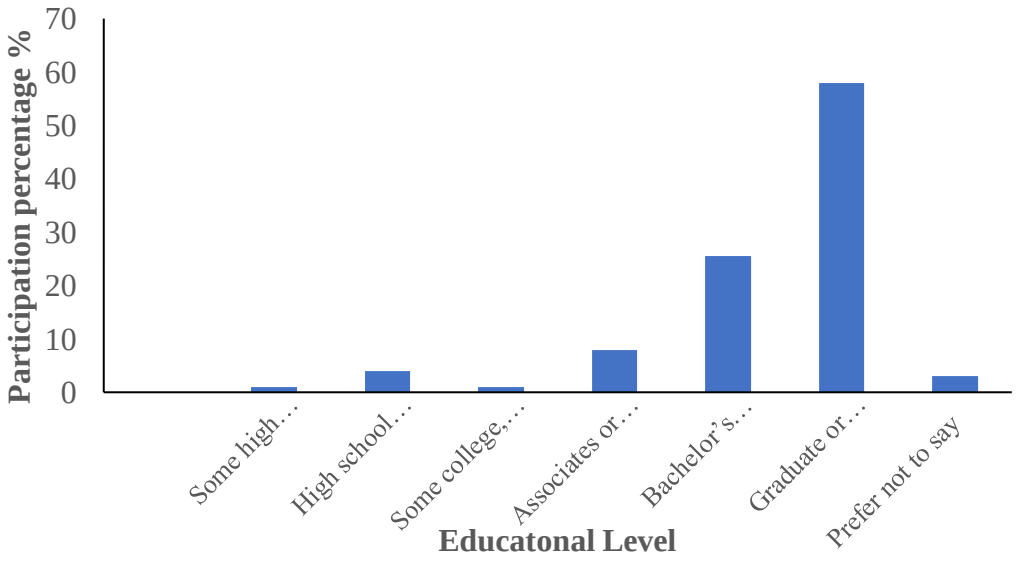
My work schedule does not provide time to form a relationship with business and industry leaders.	3.36	1.32
The CTE director independently maintains a relationship with the businesses and industries.	3.40	1.31
The local area does not have any related business and industry with which to form a relationship.	2.49	1.43
I am unable to form a relationship with businesses and industry due to their busy schedules.	2.81	1.29
Businesses and industries maintain relationships with administrators, not with individual teachers.	2.88	1.23
Relationships are only created when the businesses and industry can directly benefit from my program.	2.95	1.26
Using the same business and industry partners repeatedly causes burnout and weakens the relationship overtime.	3.21	1.25
The business and industry leaders tend to overextend their reach when it comes to advising, which ultimate	2.57	1.15
I have a supportive CTE director who encourages me to develop relationships with business and industry leaders.	1.99	1.14
Business and industry value the partnership and are committed to maintaining a close working relationship	2.36	1.14

Note. Categorization of Perceived Barriers Likert subscale items as Intrinsic and Extrinsic

APPENDIX G: Figures

Figure 1

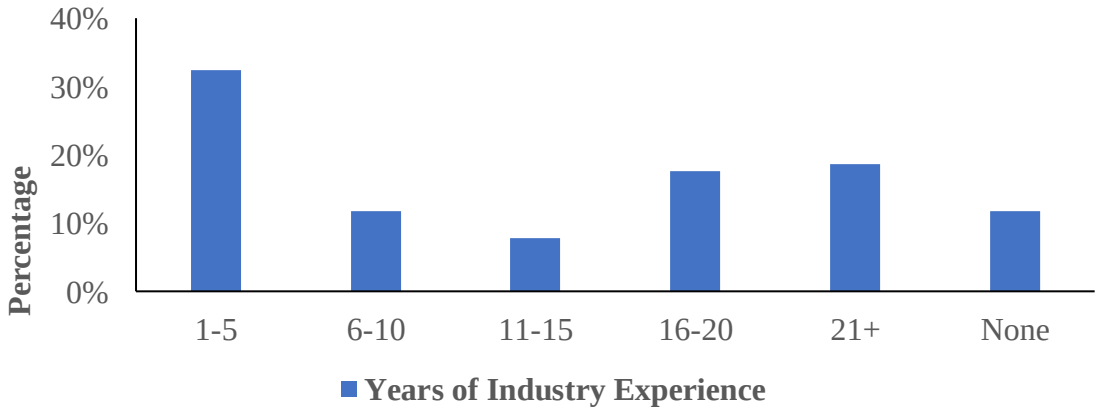
Educational Level



Note. Education level completed by Percentage.

Figure 2

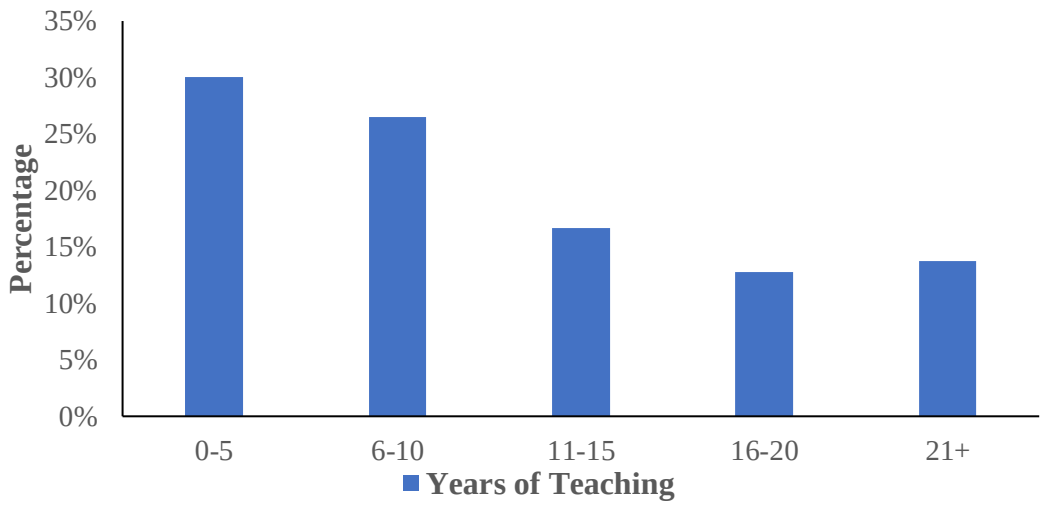
Industry Experience



Note. Industry Experience by Participation

Figure 3

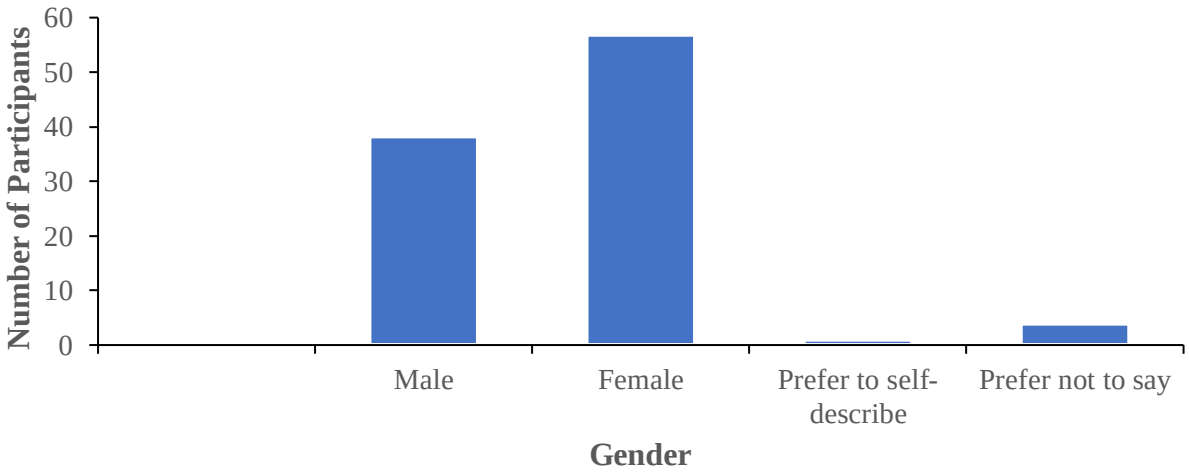
Teaching Experience



Note. Number of years teaching by percentage

Figure 4

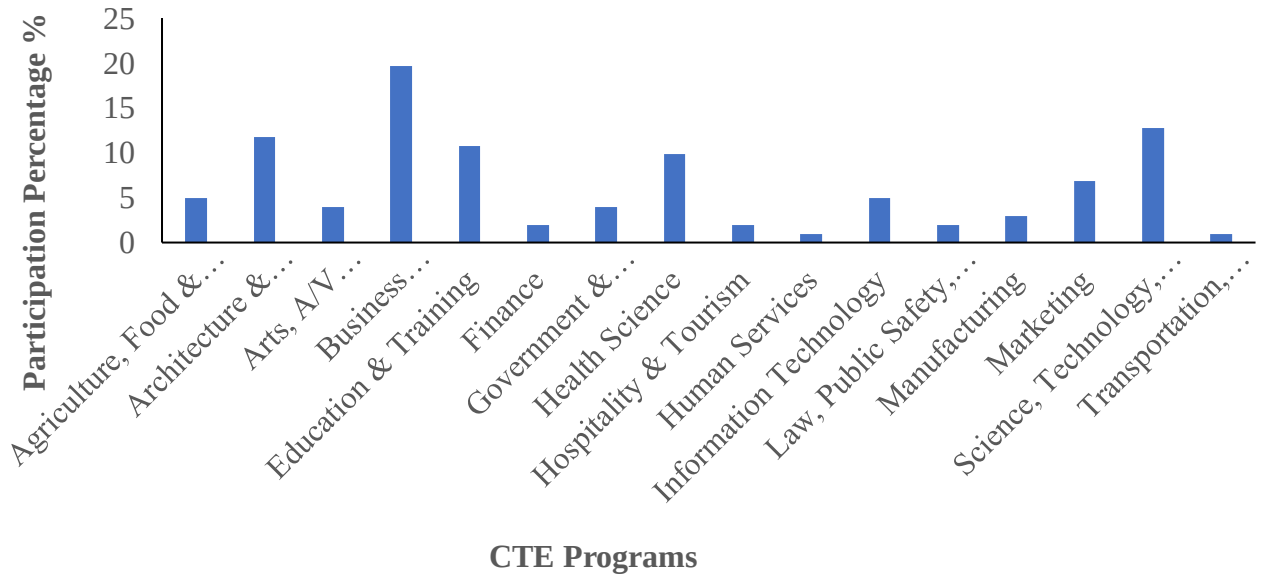
Gender



Note. Participants describe themselves

Figure 5

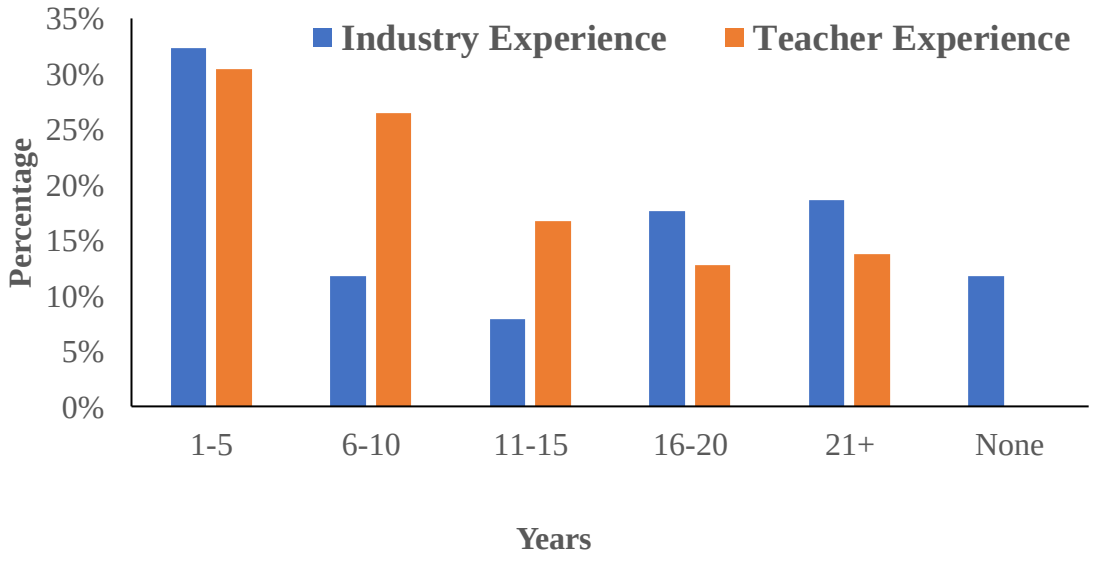
Selected Career and Technical Education Programs



Note. CTE Programs and the number of participants per program.

Figure 6

Industry Experience and Teaching Experience



Note. Participants in Industry experience and teaching experience.