

INTEGRATING APPRENTICESHIPS WITHIN HIGH SCHOOLS IN THE UNITED
STATES TO DRIVE A STRONGER WORKFORCE

by

Jordan Cameron Thurston

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by

Jordan Cameron Thurston

APPROVED BY



Assistant Professor Hrvoje Volarević, PhD, Chair



Associate Professor Andreja Rudančić, PhD, Committee Member



Professor, Josip Burušić, PhD, Committee Member

RECEIVED/APPROVED BY:

<Associate Dean's Name, Degree>, Associate Dean

Dedication

To my grandparents, Dennis and Cherry Ignatius, who continue to inspire me to become a better leader and have an impact on the world. Your sacrifices and demonstration of diplomacy and leadership have had a lasting effect on my life. I remember our days in Ottawa, Canada, at the residence and trips to Kuala Lumpur, Malaysia, and how you both continued to push me to progress and obtain my degrees, discussed career growth, and the “sprinkle of gold dust”. I will never forget the Bible verse dedicated to me, which has been a driving force in my life. Thank you, and I love you both.

“I carried you on eagles’ wings and brought you to myself.”

Exodus 19:4

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ABSTRACT

INTEGRATING APPRENTICESHIPS WITHIN HIGH SCHOOLS IN THE UNITED STATES TO DRIVE A STRONGER WORKFORCE

Jordan Cameron Thurston
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Dissertation Chair: Hrvoje Volarevic, PhD

Whether attributed to The Great Resignation, COVID-19, or general unemployment in the United States, organizations need to widen their scope for attracting top talent to stay competitive. With the job market estimated to increase by 11.9 million from 2020 to 2030, organizations need to rethink how and where they recruit new talent to fill these positions, which involves looking at a new market. High School graduates are an untapped market of knowledge, perspectives, and drive that organizations should be aware of. Through this thesis, I want to study and present new data and demonstrate a positive impact on the macro and micro economy when school districts partner with organizations to provide apprenticeships to high school students by assessing the direct economic and employment impact. This is to help address management concerns about hiring and retaining talent to tackle current labor shortages. Surveying a sample of high school students and school districts in the United States will depict a clearer picture of education's impact on the workforce and give organizations another talent pool for hiring.

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CHAPTER I: INTRODUCTION

1.1 Introduction

High school graduates are an untapped market of knowledge, perspectives, and drive that organizations should take advantage of. As the business environment constantly adapts, so should educators and how they teach the upcoming generations to enter the workforce. A recent study showed a correlation between investment in education and its impact on the economy from a salary and gross domestic product (GDP) perspective. Boser (2020) advises that the ability to improve in reading, writing, and math can increase a salary by \$11,000 USD and \$21,000 USD, respectively. Rather than waiting for students to apply for college-level internships, graduate, or enter directly into the workforce, organizations need to partner with local high schools to address on-the-job training and education for not only the segment of students that do not pursue a college degree but those who want to get into college and seek experience and an understanding of the workforce.

Focusing on the United States economy, the job market is estimated to increase by 11.9 million jobs from 2020 to 2030, with the Gross Domestic Product (GDP) estimated growth by 2.3% annually in parallel (BLS, 2021). Some ways that GDP can grow are through an increase in wages above inflation, producing more goods and services over a given period, and a perceived increase in spending power by the general consumer. With a lofty projection made by the U.S. Bureau of Labor Statistics coupled with the impact of

the pandemic and The Great Resignation, as discussed by Kellett (2022), there is a need to fill the open positions to fulfill the goal. As of September 2021, it was estimated that there were 10.4 million job openings in the United States (BLS, 2021) which means there are opportunities for organizations to attract talent into these positions. However, due to the pandemic, organizations are struggling to retain talent and attract it.

Many current experiences related to student apprenticeships in the United States exist. For example, Citigroup Inc. in Irving, Texas partners with local school districts to provide high school seniors aged 17 and 18 an opportunity to work on live projects within their Dallas corporate environment and teaches them to understand everything from business attire to communicating effectively with adults in a business setting. Some statistics from the program over the last five years include approximate efficiency saves of over 4,500 hours (187.5 days) worth of work, \$2MM in cost saves year-over-year tied to an unused and unallocated SAN storage reclamation project, and the implementation of over 60 ideas connected to continual service improvement projects (Thurston, 2022). Through the program, eight jobs have been offered to select high school graduates with an average salary of \$55,000 USD, impacting both the macro and micro economy and GDP. This means that over five years, approximately \$440,000 USD has been injected into the economy, which plays a role in spending power within Irving, Texas, and the overall GDP, equipping the students with the skillsets to enter the workforce.

The central aim of the present study is to showcase the direct economic and employment impact of organization-led high school apprenticeships in the United States and how they highlight the need for more organizations to focus on hiring high school

graduates. Crompton (2006) and Tyrrell & Johnston (2006) defined economic impact as the net economic change in the incomes and expenditures of residents and the jobs of the local community (as cited in Warnick et al., 2012). In contrast, direct economic impact refers to the direct effects an organization or program has on the region due to the organizations or programs operations as defined by The University of Alabama at Birmingham (2016). The research will also contribute to the professional field of study for Human Resource Management and Business Management by addressing the management concern of organizations hiring and retaining talent and addressing current labor shortages.

1.2 Research Problem

Organizations currently use four methods for finding talent: recruitment agencies, social media/job sites, internal talent portals, and college fairs. This has been the go-to format for years, often opening college-level internships to develop and drive competitive practices to lock in future employees. In today's business environment, competition arises when other organizations seek to do what your company does, only better (Wagner & Hollenbeck, 2010, p.xviii). As competitive practices attract talent, additional methods must be utilized. This study aims to research a fifth method, high school graduates, and the architecture of building the next generation workforce through apprenticeships and its impact on the economy. Internships are a good way for students to learn more about various jobs across industries and prepare themselves as they enter the workforce.

1.3 Purpose of Research

The purpose of this study is to highlight the importance of high school apprenticeships and their direct impact on the economy. Understanding how organizations can leverage high school apprenticeships to build the future workforce is imperative and can provide insight into the growing need for talent. The study will serve as a deep dive into the education system across the United States and how their apprenticeship programs impact communities and organizations. The objectives of the study are:

1. Examine factors that prevent school districts from partnering with organizations for apprenticeships
2. Explore the work that school districts are doing for their students to partake in apprenticeships
3. Identify the advantages and disadvantages of school districts of having high school apprenticeships
4. Understand the parents of high school senior's perspective on high school apprenticeships

The outcomes of the objectives, in parallel with the research questions, will provide a better look into the impact of organization-led apprenticeships across the United States, which can then be extrapolated to highlight the growing need for organizations to partner with schools with apprenticeship programs.

1.4 Research Purpose and Questions

In detail, the study is intended to prove the answers to the following research

questions:

1. What is the number of high school apprenticeship programs within the United States (based on sample size)?
2. How many students are enrolled in a high school apprenticeship program?
3. What is the total number of jobs offered to high school graduates that took part in apprenticeships?

CHAPTER II: REVIEW OF LITERATURE

2.1 Introduction

With the impact of COVID-19 in the United States, organizations are assessing their hiring decisions (Campello et al., 2020) and trying to combat the lack of applicants while also retaining their current employee base (Tarki et al., 2020). College apprenticeships in the United States have always been a proven source for schools to integrate the knowledge learned in the classroom with the practical aspects of a job (Galbraith and Mondal, 2020). It allows the students to get firsthand experience (Curry, 2018) into their desired career path while securing top talent for organizations. However, one area where organizations have not been focusing on is high school apprenticeships.

From a global perspective, apprenticeships at the high school level are very common and actively drive the macro and micro-economies, giving students the opportunity to a myriad of careers within the medical, technology, and business administration fields, to name a few (Foley, 2021). These types of apprenticeships in the United States are an underutilized educational and workforce strategy (Futures, 2017) and aren't highlighted to demonstrate the economic and educational impact locally and domestically for students and organizations they support. With an increase in Career and Technology Education (CTE) programs, schools are slowly learning how to best integrate apprenticeships with the students' existing schedules. These pathways and apprenticeships have the potential to engage more students and increase high school graduation rates along with postsecondary success (Brand et al., 2013).

The internship and apprenticeship experience is typically seen as the most memorable and transformational work-based learning activity for students (Fletcher et al., 2021). The United States Department of Labor (2018) states the importance of high school apprenticeship programs is to provide students with access to high-quality, industry-focused training that combines classroom and on-the-job learning, and affordable pathways to college and careers in high-demand industries. Suzie Levine, the U.S Ambassador to Switzerland, told Heather Singmaster (2015), apprenticeships are the ideal vehicle to teach 21st-century skills. They provide an opportunity to explore future careers, develop transferrable skills, establish a professional network, and gain valuable experiences and accomplishments to add to their [students'] resumes (Chorazy and Klinedinst, 2019). With the United States government publishing evidence of success surrounding apprenticeships, the question to ask is, why are organizations not diving headfirst into these programs? Labor market projections illustrate an increase in the gap in the supply of qualified employees for middle-skill jobs such as computer technology, nursing, and advanced manufacturing (Kreamer and Zimmermann, 2017). The literature review will address a gap in academic literature while expanding on academic findings and theories around apprenticeships. From a brief analysis of current academic journals and dissertations that discuss research on apprenticeships outside of craft trades, many are Science, Technology, Engineering, and Mathematics (STEM) focused and focused on the impact on diverse students within low-income communities. My aim is to take the research outcomes from the existing academic literature and build a case to highlight the

positive effects of apprenticeships in these areas and show the economic impact on organizations and their surrounding communities.

In the United States, apprenticeships are generally linked to craft trades such as becoming a roofer, plumber, or electrician, to name a few. Just as companies hire high school students who are currently involved in or attended a trade school to service millions of Americans, organizations need to capitalize on the opportunity to expose students to additional in-office opportunities to drive the economy forward and inspire the next generation in the workforce. According to Curry (2018), students in apprenticeships can learn from the stories, advice, and observations of professionals in their respective fields, which cannot be learned from books (as cited in Lerman, 2013). However, I have found that within the United States, little is written directly on the economic impact of corporate partnerships with high schools through providing apprenticeships. Apprenticeships are not a familiar concept to many Americans but expanding the use of this highly effective training model can help our nation meet the demand for skilled workers, create pathways to well-paying careers for unemployed young workers, and give American businesses a competitive edge in the global marketplace (Olinksky and Ayres, 2013). There is a need to better educate, prepare, and retrain potential workers to ensure Americans are positioned to flourish in the face of current and future economic competition (Committee for Economic Development, 2019). Understanding the correlation between organization-led high school apprenticeships and the direct economic impact and employment impact from a macro and microeconomic

and the surrounding communities are essential to the continued education of students, growth of talent, and GDP in the United States.

According to the research of Brent Parton (2017), businesses have long complained of “skill gaps” or mismatches between the skills employers want and what skills the labor market offers. As organizations continue to have a global presence, it is imperative to focus on employees and their skillsets as a competitive advantage when competing globally. McCarthy (2017) references how the Germans, the Swiss, and the British are using apprenticeships for cybersecurity, finance, and banking positions (as cited in Smith, 2017). Thurston (2020) stated that even in high school, there are untapped minds and students who wouldn’t necessarily have the opportunities at that age to go and work for a Fortune 500 company and pave their career path and make a name for themselves (as cited in Garcia, 2020). In response to COVID-19 and the Great Resignation (Kellett, 2022), organizations need to look across the different markets outside of the United States and see how their competitors are utilizing high school apprenticeships to drive value, educate students, and address the current labor shortage (Kaplan and Hoff, 2022).

2.2 Themes

As part of the literature review, the principal areas of focus are the overview of apprenticeships and highlighting existing research conducted. The themes identified through the literature review focus on Science, Technology, Engineering, and Mathematics (STEM) apprenticeships, low-income schools and diversity impact, and domestic and international economic perspectives on apprenticeships. When researching,

these topics appeared frequently and set the foundation for the importance of apprenticeships from multiple perspectives. Symonds et al. (2011) contended that the identification of alternative pathways is imperative to prepare students as the traditional, academic, classroom-based approach isn't suitable for the majority of American youth (as cited in Arthur-Mensah, 2015). Apprenticeships have become more common worldwide and are seen as a supplement to high school and university for students to learn how to implement what they learn in the classroom into the workforce. They have been identified as valuable learning and working trajectories for making successful transitions and relations between school and work (Akkerman and Bakker, 2012). These themes will be used to show what exists today while addressing the gap between the United States and the rest of the world about the use of Apprenticeships to drive a more robust workforce and highlight the importance of such programs and how they drive value for students, organizations, and the economy.

2.3 Overview of Apprenticeships

Apprenticeship has many definitions and may be interpreted differently based on geographic location and program needs. They provide structured training models to teach occupational skills at their core, combining classroom learning and on-the-job training (Kuehn, 2021). The foundation of any apprenticeship is the program on which it is built, which usually contains the following characteristics (Smith, 2018; Fuller & Unwin, 2013; Smith, 2010):

1. Training regiment set up by, or with the approval of governments, school districts, or organizations;

2. Mix of off and on the job training;
3. Assumption of responsibility by the employer to develop the apprentice;
4. The award of a qualification, license, or another form of recognition to enable the independent practice of an occupation once the apprenticeship is completed and
5. A close link to specific occupations.

This does not mean that every apprenticeship program within the United States contains these characteristics. School districts are beginning to align their curriculums to match the state of the business environment through the facilitation of Career and Technology Education (CTE) and Pathways in Technology Early College High School (P-TECH) centers and assist with highlighting the career opportunities tied to Industry 4.0, or the Fourth Industrial Revolution and the emerging technologies used to provide digital solutions (Frank, Dalenogare, and Ayala, 2019). The combination of CTE and P-TECH programs and curriculum updates to integrate Industry 4.0 bridges the gap between the theory and practice of the applications learned in the classroom to generate excitement in students and the role that technology will play in their future (Drage, 2009). This provides an advantage for organizations to identify early, top performers through their apprenticeship programs. They also offer a solution for recruiting, training, and retaining world-class talent for both blue- and white-collar workers and help fill current skill demands and future business needs (Noworol, 2020). Brahma (2021), Tripathi (2021), and Sahay (2021) all found that the nature of the workplace, its management, and the interfaces for connecting people are changing in organizations and institutions that

have adopted and are working with contemporary technologies, such as embedded systems and the Internet of Things (IoT) (as cited in Bezerra et al., 2022). As the workplace continues to evolve, so should the opportunities provided to students through high school apprenticeships to properly equip them for the future. Collins et al. (1989) and Hmelo et al. (1997) discussed cognitive apprenticeships and problem-based learning' which helped simulate professional practices while attempting to expose students to the aspects of the target community's practice and assisted with maximizing opportunities for incidental learning in the target domain (as cited in Radinsky et al., 2001). This highlights the importance of such programs even more than 20 years ago and how they have since evolved.

2.3.1 Science, Technology, Engineering, and Mathematics (STEM)

High schools and colleges have recently integrated their curriculums to encompass Science, Technology, Engineering, and Mathematics (STEM) to help provide a competitive advantage for students entering the workforce. STEM was an initiative created by the National Science Foundation (NSF) (White, 2014; Sanders, 2009) to provide students with the opportunity to become creative problem solvers within the related fields, which made them more marketable in the workforce. While there has been a success from these programs, high schools and colleges need to study further the conceptualization of STEM and the determinants of success for those involved (Xie et al., 2015; White, 2014; Breiner et al., 2012). STEM provides an innovative approach to design processes, critical thinking, and integrating the scientific method to improve products (English, 2016) through modular and efficient scenarios that allow products to

control their own manufacturing process (Lasi et al., 2014), which gives students involved in the program a competitive advantage when entering the workforce. In 2017, the American STEM workforce accounted for approximately 69% of the U.S. GDP (FTI Consulting, 2020). It is woven into all levels of education, from elementary to tertiary, and integrates content through a cohesive learning paradigm based on real-world applications (Ulmeanu et al., 2021).

As more states across the United States look to provide more opportunities for students to gain a competitive advantage when entering the workforce, they must pair the knowledge with actual outcomes and opportunities. In 2013, the Next Generation Science Standards were created to provide a different developmental pathway outside of the Common Core standards and introduce a new science standard for Americans to compete on a global scale (NGSS Lead States, 2013). The introduction of these standards in partnership with STEM programs helps to alter the way students learn about science and engineering to challenge the status quo for what is learned in schools today.

2.3.2 Science, Technology, Engineering, and Mathematics (STEM)

Apprenticeships

Student outcomes from STEM programs and apprenticeships depend on the social setting they are situated in (Xie et al., 2015) and are dependent on continuity and participation. High school participation [in apprenticeships] may reinforce the desire to enter a career path (Tai et al., 2017) and provide additional information to make informed decisions about their college education. Research conducted by Catete et al. (2022) showed that providing hands-on internship opportunities helped connect students who

want to explore computing careers; however, these opportunities are limited at the high school level. Exposure at the high school level serves as a platform to kick start an interest in a specific field and provide opportunities to students who necessarily would not have had an awareness of such areas to explore additional apprenticeship or learning opportunities when entering higher education. There is likely to be a continued demand for people who complete technical/STEM apprenticeships (McCaig et al., 2014) and the skills acquired through these types of programs.

STEM apprenticeships can offer significant wage returns to those who participate and give productivity gains to employers (Gambin & Hogarth, 2016). While STEM programs and apprenticeships benefit students, little is published to demonstrate the curricular opportunities or experiences offered by the schools themselves, however, patterns can be found through what is offered versus non-specialized schools (Tofel-Grehl & Callahan, 2014). Schools need to market their STEM programs and apprenticeships to highlight the value they bring to students and to influence other schools in neighboring districts to follow suit. Commonly seen in the American public education system, there is one common pathway that involves four years of high school and continued higher education (Lake et al., 2018). However, this does not always prepare them for the competitive jobs they will compete for or even realize they exist. STEM has not only created its own category and style of courses for students to take, but it also played a role in the creation of the Career and Technical Education (CTE) pathway (PCRN, n.d.), which supports State initiatives to improve the transition high school students to postsecondary education and employment.

In a study conducted by Black et al. (2021), there was an observed connection between STEM training in high school and STEM occupations, including higher wage and skill occupations, across all professions. The skills obtained gives students a head start in their career journey and the opportunity for a hands-on experience. When asked about goals, school leaders often described the importance of engaging students with real-world problems and developing them as critical thinkers and active citizens (LaForce et al., 2016). Despite the goals of school leaders and the success of STEM programs and apprenticeship successes in countries such as Germany, Switzerland, and the United Kingdom, Rosen, Visher, and Beal (2018) found that the apprenticeship model in the U.S. is still relatively new and there is not much evidence that they are beneficial to the U.S. economic system (as cited in Decker, 2019). With traditional “non-STEM” jobs requiring skills tied to STEM areas, Jang (2016) identified that there continues to be an increase in these areas that go beyond the basics (as cited in Patel et al., 2021) which further highlights the needs of schools to either begin or continue teaching students these subjects.

2.4 Low-Income School Districts and Diversity Impact

Low-income school districts are defined as districts located in rural areas and have at least 20% of the attending children from parents with incomes below the poverty line (Office of Elementary & Secondary Education, 2021). Educators, institutions of higher learning, policymakers, and researchers around the world are increasingly recognizing challenges faced by underserved students not only in attaining their college education but the need for better partnerships in the community to improve underserved

students' chances of success (Ghazzawi et al., 2019). As economic inequality in the United States remains a central issue in political commentary and scholarly research (Decker, 2021), organizations and schools should partner to provide better outcomes for students in low-income districts.

School-based internships involving low-income students of color impact the types of colleges and career resources and the opportunities developed through multiple and diverse work environments, as seen in research conducted by Murillo et al. (2017). As career-technical education is on the rise in the United States (Advance CTE, 2016), more school districts need to get involved. A gap that I have seen in high schools is the teacher informing students about the business world, despite having any practical experience, only theoretical. This does not transpose well when high school graduates enter the workforce, which is seen as one of the most crucial periods in a student's life (Schoon and Silbereisen, 2009), and are met with additional social challenges on top of learning their job.

Apprenticeships provide a positive solution to challenges faced by youth who receive Supplemental Security Income as they transition into the workforce (Kuehn, 2021). Studying the existing research clarifies that apprenticeships positively impact earnings and employment. These opportunities help counteract the curricular, psychosocial, and socioeconomic disadvantages Latino and African American students face in low-income schools (Crosnoe, 2009). Due to these disadvantages, low-income students worldwide often start behind their peers (Ferguson et al., 2007) and cannot afford to go to college, but can learn new skillsets and still contribute to the domestic and

global economies. Bailey and Dynarski (2011) identified that only 9% of students from the bottom of the income quartile who entered college completed a bachelor's degree by the age of 25 (as cited in Lerman, 2014b). Hanks et al. (2018) conducted a study that reflected that not only provided reporting on racial demographics decreased over time but that Black apprenticeships made significantly less than any other racial and ethnic group post completion of an apprenticeship program. While specific vocational programs help facilitate labor market allocation, they can lead to a reproduction of socio-economic inequalities (Ertelt et al., 2021). Murnane (2013) states that the high rate at which disadvantaged Americans fail to complete their high school education is also a barrier to greater levels of higher education, regardless of the improvement of dropout rates (as cited in Holzer, 2021).

While apprenticeships can be beneficial for low-income students, organizations will need to be wary of many factors. Working too many hours can have a negative impact on their grades, especially if the job they hold lacks a direct connection to their desired career field (Carnevale and Smith, 2018). Ensuring students are paired up with apprenticeships that correlate with their interests and field of study is imperative for their growth and ability to pick up the necessary skillsets needed to enter the workforce. College isn't always an option for low-income students, and organization-led high school apprenticeships can help better prepare them. Completion rates among Pell [grant] recipients, and low-income youth and adults, appear to be very low, especially at the community colleges where low-income students are heavily concentrated (Holzer, 2014).

A study in Wisconsin and other states (Martinson, 2018) yielded challenges faced by low-income, low-skilled workers entering, staying in, and advancing in the labor market:

1. Some workers have significant and multiple barriers to employment, including health issues and disability, substance abuse, criminal records, domestic violence, limited education, or other crises that cause them to be unable to find or keep jobs
2. Jobs that require some level of postsecondary education or training are even more difficult for low-income, low-skilled adults to obtain, with many facing considerable barriers to completing even short-term training for entry-level jobs
3. Many people work, but do not work consistently enough or at jobs that pay enough to support a family. Low retention can be due to the nature of jobs that are typically low-paying or entry-level, with limited benefits, unpredictable hours, and few opportunities for advancement
4. Low-income single mothers, in particular, have high rates of turnover, even after accounting for their lower education levels, and the frequency of turnover rises with the number of children they have

While apprenticeships require states to make an up-front marketing investment to attract employers, they have the potential to yield a long-term flow of private training that involves little government funding and can help train low-income, low-skilled students. Apprenticeships are a way to move low-income, minority, immigrant, and impoverished workers from minimum wage fast-food jobs with few benefits or paid time off into

better-paying career jobs, such as hotels (Cheney, 2017). The National Skills Coalition (2017, 2020) highlighted that 43% of workers are prepared for 53% of jobs that are considered “middle-skill,” which creates a skills gap. Current research continues to focus on how to fill these skill gaps with education and training, particularly for those that are from low-income backgrounds (as cited in Yount, 2021). Grim et al. (2019) stated that even though there are still significantly stratified experiences and barriers for low-income students, a better understanding of how financial aid policy and localized relationships impact postsecondary access provides scholars and practitioners with a more focused approach to research questions and interventions that increase low-income student pathways to postsecondary education. This combination of rapid change and new investment has further stimulated interest in apprenticeships; in areas such as the preparation of under-skilled individuals so that they can work with employers and training providers in new and different ways (Crane and Colborn, 2016).

The evolution of the modern American and global economies poses significant challenges to urban youth who may lack adequate employment-search knowledge, resourceful social ties, and support (Bennett, 2007). Even if they aren't brought on immediately after, investing in students through an apprenticeship can result in them attending college to learn the theory behind their work and returning to the organization afterward. Organizations often look at the ROI when it comes to apprenticeships which can limit opportunities for low-income students when taking a chance on a high school student can significantly impact their life and contributions to the organization.

2.5 Domestic and International Economic Perspectives

Compared to other countries, it is evident that our schools and businesses are not sufficiently educating and training adolescent employees for meaningful employment in the United States (Chang, 2015). There have been several studies conducted over time by Compton (2008), Friedlander (1993), Laanan et al. (2007), and Maguire (2009) that show a positive relationship between one's level of education and greater economic return (as cited in Maguire et al., 2012). Globally, apprenticeships benefit organizations by reducing hiring costs and lowering attrition (Helper et al., 2016). They also offer the employer access to additional skilled workers and productivity gains through increasing human capital (Lewis, 2014). With the impact of Covid-19, there has been a knowledge void created within the education industry's ability to provide meaningful and productive education systems (Slater and Cojanu, 2021). Globally, schools have switched to virtual learning, which can hinder students' ability to learn and retain the information taught, especially in high-poverty schools (Chen et al., 2021). If done correctly and coupled with apprenticeships, they can imitate what working remotely in the workforce looks like. Bauman (2020) found that the workforce dropped by an estimated 350,000 during the pandemic between layoffs, furloughs, and voluntary early retirement (as cited in Adler, 2021). As the pandemic has hit the jobs market hard, apprenticeships can also be seen as a key to rebuilding the global economy post-Covid (Little, 2021).

2.5.1 Domestic

Katz and Elliott (2020) discuss the low commonality of apprenticeships in the United States, and while there is an official registered system, it relies only on a few

industries and occupations, specifically the construction trade and military. Many firms in advanced economies do not offer apprenticeships; according to Lerman (2014), the ability for firms to retain apprentices allows them to benefit from low recruitment and training costs and should be looked at as a capital investment. In an earlier article by Lerman (2013), he stated that it is a possibility that the initiatives in education either do not emphasize or successfully teach employability and occupational skills. Callanan and Benzing (2014) back this up by arguing that apprenticeships have become a popular form of bridging the transition from education to work (as cited in Margaryan et al., 2020). This is an area that I hope to uncover in my research to highlight the need for schools to shift their curriculum to focus on the student's future and growth versus the standard curriculum we see today that does not set up students for entering both college and the workforce.

One of the most important financial responsibilities of state and local governments is the development of schools and universities (Orrenius, Canas, and Weiss, 2015). Educational institutions can generate the human capital required for sustained economic growth. Without the ability for students to obtain the necessary skillsets for the workforce, there will continue to be a gap in the job market where employers struggle to find and retain candidates. According to Arabandi et al. (2021), having a sustainable apprenticeship through the creation of employer consortia plays a critical role in building apprenticeship systems and offering a cost-effective solution for driving talent development within high schools.

While programs such as Apprenticeship 2000 in North Carolina have been ongoing for over 25 years, 930 students have participated in the program, and only 327 were hired, or 35% (Arabandi et al., 2021). This statistic highlights the program's limitations, including Fletcher and Gordon's (2017) finding of the lack of strategic development for high education institutions to prepare the next workforce generation (as cited in Darnell, 2020). Public sector apprenticeships are underutilized for economic development (Elliott et al., 2021). With student loan debt seen as a critical debt sector in the U.S. economy (Futures, 2017), apprenticeships allow students to begin saving money and even end up with a job post-graduation. The federal government also offers many opportunities for high school apprenticeships that can range from conducting legislative research to biomedical research (Manning and Ludwigson, 2010). As the GDP rises and falls within the United States, it could result in a downturn leading to reduce recruitment from organizations through these types of programs (Brunello, 2009), which further drives the need for organizations to assist in the GDP of 2.3% annual growth strategy (BLS, 2021).

Many communities across the United States face economic development issues that demand local and regional action; employers will need to redefine the workforce needs and create programs for continuous learning (Lund et al., 2019). As Covid-19 has made preparing the future workforce to drive rapidly advancing technology in the global economy (The Conference Board, 2021), there is now an estimated 40% of workers who will need short-term training and reskilling by 2025 (World Economic Forum, 2020). When the GDP rises, in parallel with technological advances such as artificial

intelligence, the labor market will need to shift towards upskilling the workforce (Executive Office of the President, 2016) and mass hiring efforts that can be achieved using high school-based apprenticeships. Recent studies conducted by Pew Research (Fry and Parker, 2018; DeSilver, 2021) highlight that today's young adults, between the ages of 15 and 21, are less likely to have a paid summer job or to have been employed in the last year when compared to previous generations (as cited in Busteed, 2019). With school-aged students in the USA underperforming, particularly in STEM (Stehle and Peters-Burton, 2019), school districts need to re-evaluate their curricula to adapt and accommodate the ever-changing student needs.

2.5.2 International

2.5.2.1 Europe, Middle East, and Africa (EMEA)

Through a study conducted by McIntosh (2007), it was found that British workers who concluded apprenticeship programs could expect both higher wages and a significant chance of being employed (as cited in Aivazova, 2013). Statistics for 2020-2021 show that approximately 38,800 students in the UK under the age of 19 were engaged in apprenticeships (Foley, 2021), including Manufacturing Technologies and Child Development and Well Being frameworks and Business Management and Health and Social Care Standards. Per research conducted by Rauner et al. (2010), a study of apprenticeships in 100 German firms found that most firms could recoup their investments during the training period (as cited in Lerman, 2014a). There is evidence of apprenticeships and their impact internationally; however, this helps set the stage for a conversation within the United States for more organizations to partner with high schools

to provide opportunities to learn on-the-job training in a corporate setting before graduating.

As Muehlemann et al. (2018) highlight in their research, the economic benefits of an apprenticeship system are extensive as higher education continues to become more expensive. Organizations need to partner alongside schools from a curriculum updating perspective as they can look internally and identify what upcoming technology and skills will be required for students to be successful (Rupietta and Backes-Gellner, 2018). As high unemployment rates in youth continue to increase across Europe, schools need to better integrate into the industries and government structure (Silva et al., 2018) to provide more career advantages and opportunities through apprenticeships. Demand for such programs is dependent on the macroeconomic performance of the economy (McCaig et al., 2014). A study in the Netherlands conducted by Ashwani and Geerija Aggarwal (2021) found that the unemployment rate of apprenticeship graduates was much lower, between 2-5%, compared to the unemployment rate of school-based vocational training graduates, which was between 11-30%. This example reflects the impact of apprenticeships on the economy and how they provide students with a competitive advantage over those who don't partake in the programs (Helper et al., 2016).

Research conducted by Ryan (1998), Clark and Fahr (2002), Hofer & Lietz (2004), McIntosh (2007), and Fersterer et al. (2008) across the European Member States found that in essentially all 25 studies and ten countries analyzed, there was an impact on wages when compared to workers with low education and no apprenticeship experience versus workers who had completed full-time vocational education (as cited in Lodovici et al.,

2013). Over time in EMEA, apprenticeships have been integrated into local communities to raise awareness of their importance to businesses. As part of an economic development strategy set over three years from 2016 to 2019 in Runneymede Borough, Surrey, apprenticeships were a key objective to inform businesses about the skills training opportunities (Runneymede Borough Council, 2016).

Apprenticeships can also be used by organizations and governments to address employment gaps by providing opportunities for students to apply what they have learned so far in school while having an impact on the respective organization and the local community. Kruss and Wildschut (2016) discussed the local impact of a public outcry from South African employers and the revitalization of the apprenticeship programs to address the decline in skilled artisans. While apprenticeships are commonly used across the EMEA region, countries such as Senegal look at these programs as second chances for teenagers who dropped out of school and there is no significant effect on students who undergo apprenticeships and the participation in the labor market or clear effect on earnings (Aubery et al., 2020). A stigma such as this can hinder a country that wants to grow its talent pool and add more jobs to its economy. However, just southeast of Senegal, Ghana had seen an increase in earnings by approximately 50% from those who had both an apprenticeship and no formal education (Teal, 2016).

2.5.2.2 Asia Pacific (ASPAC)

As the Fourth Industrial Revolution impacts the job demands across Asia, the systems that make up quality apprenticeships need to evolve with the participation of employers in curriculum development (Sudan, 2021). While apprenticeships can

sometimes suggest a labor shortage, as noted by Stahl and Zheng (2002) and Zheng (2005), they can be used to train lower-level production employees, which are usually required of multinational companies that operate in Asia (as cited by Zheng et al., 2007). Over the last decade, Asia has seen a new wave of attempts to create, resurrect, and strengthen apprenticeship training to combat the growing youth unemployment crisis (Swisscontact, 2019). As a result of the COVID-19 pandemic, many young people in Asia and the Pacific are likely to face difficult transitions from school to work (ILO, 2020).

Apprenticeships through vocational high schools have become popular in South Korea, which has spawned specialized high schools designated to facilitate work-based learning and on-the-job training (KRIVET, 2021). These specialized high schools cover fields of study and subjects tied to electronics and mechanical engineering, internet and information, design, tourism, cooking, and many others. The push for these schools stemmed from the Educational Reform for New Education System II Act of 1996 (Lee, 2000). Over time, the program was modified as it became evident that the standard high school curriculum was not set up to develop the competitiveness that was required by the increasingly globalized and knowledge-based economy (Jung et al., 2004).

Comparing the study conducted by Chae and Chung (2005) where they stated that literature suggested that vocational high school graduates in Korea are likely to pursue higher education rather than entering the labor market post-graduation due to the economic environment not supporting young students with low education and low vocational skill (as cited in Xiao et al., 2018) it is clear that much has changed over 16

years and how prevalent these vocational programs are to the growth of Korea's economy. Kim (2021) showed that vocational high schools in Korea also had 35.4% more students move directly into the workforce versus going straight to a university compared to the general high schools. This shows the importance of integrating apprenticeships into education at the high school level and how it can further drive an immediate stream of new workers into the economy.

2.6 Summary

It's no surprise that apprenticeships are viewed differently based on demographics and trends in each of the regions, but at the core of it, we can see the positive value they bring to students and organizations alike. Given their low cost and high returns for some participants (Teal, 2016), apprenticeships create the foundation for organizations to strengthen their workforce while giving them a competitive advantage. Apprenticeships, whether integrated with the government or a grassroots program at an organization, six months to 1 year, or what industry it takes place in, can help drive direct economic and employment impact in the local communities.

Through the literature review, we can conclude that while several articles and research are conducted on apprenticeships within the United States, discussions around the direct economic impact and employment impact on school districts and students who participate in organization-led apprenticeships across the nation are scarce. Many studies focus on specific industry-based apprenticeships and programs within select States, tying in behavioral impact (Vazsonyi and Snider, 2008; Friberg, 2014; Huang et al., 2019; Dennen and Burner, 2008) along with the effects on low-income students (Lehmann,

2012; Decker, 2019; Van der Meulen Rodgers and Boyer, 2006). It is also apparent that the U.S. is far from having an orderly system (Morgan, 2019) compared to Switzerland's apprenticeship systems. While university internships play a crucial role in achieving innovation-based outcomes (Okolie et al., 2021), there is a gap in understanding how high school programs can lead to similar outcomes and provide early access to more opportunities. Industry leaders have expressed concern about graduates no longer possessing the necessary skillsets required for employment (Jackson et al. 2016).

Apprenticeships are primarily decentralized in the United States (New Jersey Institute for Social Justice, n.d.), and organizations need to take the lead to develop and manage them as they are the core of the systems (European Alliance for Apprenticeship, n.d.). The current approach differs from apprenticeship programs in other countries where there is heavy reliance on industry, workers, and government to set minimum standards and provide external competency tests (Lerman, 2010). Over 221,000 people entered the apprenticeship system in the United States, bringing the total number to around 636,000 nationwide (U.S. Department of Labor, 2020). Schools within the United States have begun to integrate Career and Technical Education programs into high schools, with approximately 12.3 million students enrolled. School districts need to partner with organizations to further bridge the gap between theory and practice to develop skills and technical knowledge and provide a real-world experience (Advance CTE, 2022).

Looking across the themes, there is a need for these programs within the United States. The Carl D. Perkins CTE Improvement Act was signed in 2006 with the intent to strengthen the focus on responsiveness to the economy, a reauthorization of the School-

to-Work Opportunities Act of 1994, which further address America's skills deficit by providing a comprehensive system to assist students in successfully transitioning from school to career-oriented work or further education (Threton, 2007). With the further integration of CTE programs into districts over the years, schools are already creating more opportunities for their students to be successful, many of which have apprenticeship programs built into them. A successful start into vocational and professional training and, thus, into working life constitutes the foundation for a sustainable occupational future (Ertelt et al., 2021). Many research studies conducted on leadership development and training in schools have highlighted the key role that the workplace plays in professional development (Earley, 2009). Schools need to do their part in developing student leaders and leveraging apprenticeships to solidify the skills and principles learned. In addition to benefiting the student, apprenticeships offer employers the opportunity to observe individuals' skill sets, evaluate their strengths and weaknesses, and potentially identify new candidates for employment (Jason et al., 2016).

Organizations and school districts need to redesign the way apprenticeships, which have a long history in the States, are adopted outside of trades such as construction and utilities (Goger and Sinclair, 2021). To be competitive in the global market, organizations must invest in the skills development of both existing and future employees (Handugan, 2019). Education within the United States must further align with organizations' needs to push the economy forward, especially during the pandemic, to drive a more robust workforce. Looking at the countries around the world that have successfully integrated apprenticeships at the school and government levels, there are

many benefits that organizations can learn from while having a direct impact on the macro and micro-economies. Apprenticeships within the United States can help bridge the skills and opportunity gap (Goger and Jackson, 2020) between students that come from low-income communities and middle to upper-class communities by giving equal career opportunities, allowing them to contribute to the economy, and lessen the wage and poverty gaps that exist today. They [apprenticeships] are effective at training workers who are unable to pursue or complete college and might otherwise end up in low-wage jobs (Lerman, 2016), and instead of accumulating debt, students get to earn while they learn (Fuller and Sigelman, 2017). They allow for the exploration of new fields that many students may not even know exist and significantly increase geographic labor mobility (McGiveron, 2019), which contributes to economic growth on a global scale. Whether through a rotational or single role-based program, students can dive deep into their interests and not feel rushed to declare a specific major if they attend college.

Many supporting studies support the impact of organization-led apprenticeships on low-income and diverse students. If implemented correctly, these programs give students additional guidance when trying to navigate the transition from high school into the workforce by helping them plan and commit to paper the essential steps needed to arrive at their goals (Fazekas & Warren, 2010). Understanding employer expectations, the type of work conducted, and the skillsets required are one of the many positives that apprenticeships provide. As the need to strengthen our economy post-COVID 19 rises, the United States needs to start looking at high schools across the country, especially low-income and diverse districts, to ensure they are preparing them to enter the

workforce which in return will increase the employment impact and increase equity and opportunities for the younger generation (Ross et al., 2020) and assist with breaking generational poverty in some instances. Low-income high school students in 2018 had a graduation rate of 79.5% compared to the national graduation rate of 85.3% (Atwell et al., 2020). If schools did their part to develop students within their districts while partnering with organizations for apprenticeships, this would influence the direct economic impact within the micro-economies and assist with high turnover rates, which are set to rise by nearly 20% from pre-pandemic averages due to hybrid work arrangements and remote career opportunities (Gartner, 2022). As economic inequality in the United States remains a central issue (Decker, 2021; Rumberger, 2010; Smeeding, 2005; Dickert-Conlin and Rubenstein, 2007), schools and organizations need to improve outcomes and opportunities are afforded to students, especially in low-income districts. Investing in students through an apprenticeship program with the potential to obtain a job at the end is imperative to the growth of the United States GDP (Government Publishing Office, 2022).

From an international perspective, an issue identified by Deissinger (2012) showed that when compared to German-speaking countries, there are inherent problems to the English apprenticeship system which is mainly attributed to the lack of theoretical underpinning of workplace learning, absence of general education, lack of mandatory part-time roles of schools/colleges, and an apparent lack of firm legal arrangements to which employers and trainees have to adhere to while simultaneously relying on a framework which all stakeholders and the government alike accept. This is a clear gap

missing in the United States; firm legal arrangements between employers and school districts to follow an approved framework to develop students for the workforce. Eyler (2002) and Rehling (2002) share that the relationship is primarily between the community and academic institution as the work assigned to the students integrates practice with specific subject knowledge (as cited in Hynie et al., 2011). D'Abate (2010) also concluded that they help students move beyond the classroom to interactively develop skills, perspectives, understanding, and knowledge for the workplace (as cited in Keller, 2012). McCarthy and Kuh (2006) state that while the majority of high school seniors (approximately 90%) say they intend to continue their post-secondary education, many do not engage in the appropriate educational activities that will prepare them to excel in college (as cited in Kuh, 2007) to which Schwartz (2014) found of that 90%, only 42% of high school graduates earn a meaningful postsecondary credential by their mid-twenties (as cited in Bouchard, 2021).

With the Fourth Industrial Revolution's ability to potentially yield greater inequality through the disruption of labour markets (Schwab, 2016) coupled with the after-effects of COVID-19 that continue to impact economies globally through mobility, trade, and travel (Shrestha et al., 2020), organizations need to seek new hiring strategies to incorporate high school apprenticeships and straight-to-job offers based on a set selection criterion when the program concludes. As the rest of the world leads with apprenticeships (Ferenstein, 2018), both organization and government-led, the United States must adapt and align its education strategies to match the global education trend (Kim et al., 2019) to strengthen its economy and provide opportunities targeting young

adults who choose to pursue the workforce directly after high school or attend further education. As traditional models were challenged during the pandemic, the ability to work remotely without needing to travel to internship sites (Linkov et al., 2021) provided the ability for students of all demographics to attend and build the necessary skills to be competitive and continue their education as they enter the workforce. Instead of reducing programs as a response to the pandemic, organizations need to learn that making personal connections and research experiences are more valuable and create more opportunities for student engagement (Lalish et al., 2021).

According to Dewey (1916), Students benefit when schools enable them to take part in learning opportunities beyond the traditional classroom that can transform their minds and build their personal capacity toward future possibilities (as cited in Bennett, 2007). Internships, apprenticeships, and high-quality work-based learning experiences develop the aforementioned skills such as problem-solving, teamwork, communication, and a solid work ethic and establish an opportunity to collaborate with others (Benfield, 2020). Students who enroll in CTE programs across the United States are given career pathway opportunities that can include direct entry to the workforce, apprenticeships, trade school, two-year college programs, and university (Carr, 2022). Investment in CTE [and similar] programs has been a great starting point as part of America's strategic plan to fill a diverse workforce with specific skills to reduce the shortage of skilled workers, predict and support economic workforce needs, and continue to grow and sustain industry and community ecosystems (Davis, 2022), however, there is still much work to do. School districts and organizations need to recognize the value of internships, mainly as

they can be used as a form of pre-employment screening and competitive advantage over other employers (Stewart et al., 2021).

It is difficult to know how global pandemics will impact apprenticeships and jobs in the future, but with employees used to working productively at home and employers benefiting from cost savings associated with remote work (Dent and Jo White, 2020), it is here to stay. A call to action is needed from policymakers and administrators to promote successful transitions from high school and maximize the effectiveness of approaches to the high school curriculum, especially for students who traditionally face barriers to successful post-secondary transitions (Bangser, 2008). An analysis conducted by O'Higgins and Pinedo (2018) on over 12 countries and 22 studies found that:

1. Apprenticeships, under certain conditions, can contribute to the integration of young people into the labour market;
2. Not all apprenticeships enhance young people's subsequent employment, and on average, the effect of apprenticeships on the medium-term appears to be modest
3. There is overwhelming evidence that paid internships are associated with better post-internship labour market outcomes in the short-run versus unpaid ones;
4. Structured and formalized apprenticeships are associated with better post-programme outcomes. These features include, in addition to the payment of a stipend, the presence of a mentor, access to health insurance, similar working

conditions to regular employees, and a sufficient internship duration to allow significant work-related competencies to be acquired;

5. Some features, like apprenticeship certification and undertaking an apprenticeship in a big firm, in addition to improving the short-term employability of an apprentice, also exert a positive influence on the medium-term employment prospects of participants.

While there is still much to learn about the impact of organization-led apprenticeships in the United States, prior research and existing literature highlight the need to expand these programs while adapting to the ever-changing landscape of students, school districts, and the global economy. With this research, the intent is to demonstrate that there is a positive impact on the macro and micro economy when organizations provide apprenticeships to high school students by assessing the direct economic and employment impact. This is to help address management concerns about hiring and retaining talent to tackle the current labor shortages today. Through surveying a sample of high schools and speaking with school districts in the United States, it will depict a clearer picture of the impact that not only education has on the workforce but also gives organizations another talent pool for hiring. My hope and argument for this study are that it furthers the research in the human resource management field and contributes to a change in the way organizations, schools, and government(s) look at and conduct apprenticeships. There is a significant gap in skills that can be addressed by organizations targeting high school through apprenticeship programs and hiring graduates. This is an essential topic to me and can be seen from two perspectives:

Student: Building up the next generation of students and preparing them for the workforce is integral to their success and provides them a competitive advantage in the global economy. By giving students access to apprenticeships, especially in low-income communities, they can experience new opportunities and learn skills that wouldn't necessarily be taught through formal education.

Organization: Apprenticeships provide organizations an opportunity to develop new talent to address skill-based needs and help hire and retain talent within. Amidst the pandemic and the Great Resignation, where over 4.5 million workers walked away in March 2022 alone (Fox, 2022), it is imperative that organizations look to high school graduates as a source of talent, like how they engage college graduates today for opportunities. The competitive advantage here is how quickly large organizations can design and implement a high school apprenticeship program with their local school districts to beat out their competitors in the war for talent (Kelly, 2021).

CHAPTER III: METHODOLOGY

3.1 Overview of the Research Problem

As schools in the United States continue to implement and expand their Career & Technology Education (CTE) programs, there is a need to include apprenticeships as part of the curriculum in partnerships with organizations to better prepare students to enter the workforce. Today, organizations recruit through agencies, social media/job sites, internal talent portals or career fairs and has been the primary format for years. Given the current economic landscape with recent layoffs from financial services, technology, and retail where global recalibrations are happening in the wake of a slowing economy (De Avila, 2023), organizations need to use new competitive strategies for hiring and attracting talent.

As organizations begin to recover from The Great Resignation, COVID-19, and general unemployment in the United States, it creates opportunities to partner with high schools that offer or are interested in offering internship programs to address this gap. According to Ryan Farrell and William Lawhorn (2022), the U.S. Bureau of Labor Statistics states that more than two-thirds of jobs are in occupations that don't typically require a college degree, as shown in Figure 1 below. While that number may shift in the coming years, it is indicative that even without a college degree, high school graduates have an opportunity to pursue entry-level jobs upon graduation, and organizations play a significant role in that.

Typical entry-level education	Employment, 2020	Employment distribution, percent, 2020	Percent employment change, 2020–30	Median annual wage, 2021 ⁽¹⁾
Total, all occupations	153,533.8	100.0	7.7	\$45,760
Doctoral or professional degree	4,204.0	2.7	8.9	\$115,010
Master's degree	2,782.8	1.8	16.4	\$77,920
Bachelor's degree	36,407.8	23.7	9.9	\$78,560
Associate's degree	3,274.8	2.1	10.5	\$59,280
Postsecondary nondegree award	9,542.7	6.2	9.7	\$44,280
Some college, no degree	3,868.9	2.5	3.0	\$37,960
High school diploma or equivalent	59,150.7	38.5	5.1	\$38,310
No formal educational credential	34,302.1	22.3	8.9	\$29,420

Footnotes:
⁽¹⁾ Data are from the Occupational Employment and Wage Statistics program, U.S. Bureau of Labor Statistics. Wage data cover non-farm wage and salary workers and do not cover the self-employed, owners and partners in unincorporated firms, or household workers.
Note: The occupational employment and growth rates shown in this table include projected growth in all jobs from 2020–30, not just entry-level jobs. Entry-level education reflects 2020 requirements—BLS does not project educational requirements.
Source: Employment Projections program, U.S. Bureau of Labor Statistics

Figure 1
Employment, wages, and projected change in employment by typical entry-level education (Employment in thousands)

This study aims to focus on a new method and opportunity that organizations are missing out on; high school graduates and the importance of developing the next generation workforce through high school apprenticeships.

3.2 Operationalization of Theoretical Constructs

At the base level, mixed methods research uses both qualitative and quantitative data and provides an alternate methodological approach to the traditional research approaches (Halcomb and Hickman, 2015). According to Goertzen (2017), qualitative research is concerned with collecting and analyzing data that is structured and can be represented numerically while qualitative research focuses on non-numerical data to understand the idea that meaning is socially constructed by individuals in interaction with their world (Merriam, 2002). For the purpose of this study, a mixed method research approach was utilized as it, per Tashakkori and Creswell (2007), includes the collection

and analysis of data, integrates findings, and draws inferences using both qualitative and quantitative approaches (as cited in Doyle et al., 2009).

3.3 Research Purpose and Questions

The purpose of this study is to highlight the importance of high school apprenticeships and their direct impact on the economy. Understanding how organizations can leverage high school apprenticeships to build the future workforce is imperative and can provide insight into the growing need for talent. The study will serve as a deep dive into the education system across the United States and how their apprenticeship programs impact communities and organizations. The objectives of the study are:

1. Examine factors that prevent school districts from partnering with organizations for apprenticeships
2. Explore the work that school districts are doing for their students to partake in apprenticeships
3. Identify the advantages and disadvantages of school districts having high school apprenticeships
4. Understand the parents of high school senior's perspective on high school apprenticeships

The outcomes of the objectives, in parallel with the research questions, will provide a better look into the impact of apprenticeships across the United States, which can then be extrapolated to highlight the growing need for organizations to partner with schools with apprenticeship programs.

In detail, the study is intended to prove the answers to the following research questions:

1. Determine the number of high school apprenticeship programs within the United States (based on sample size)
2. Assess the number of students who are enrolled in a high school apprenticeship program
3. Number of jobs offered to high school graduates that took part in Apprenticeships

3.4 Research Design

This study uses a pragmatic philosophy as it draws observations liberally from qualitative and quantitative assumptions (Creswell, 2008). According to Corbin and Strauss (2008) and Feilzer (201), pragmatic inquiry derives from the view that all research should emanate from a desire to produce valuable and actional knowledge and solve existential problems (as cited in Kelly and Cordeiro, 2020). It will also leverage action research as the primary purpose is to bring about change in specific situations, local systems, and real-world environments to solve real problems while attempting to bridge the gap between theory, practice, and research (Parkin, 2009).

I selected this criterion as the purpose of my paper to raise awareness of the benefits of organization-led high school apprenticeships and that organizations and school districts alike need to take action to implement or improve existing apprenticeships to further drive the workforce in the United States. From a practical observation, as more jobs are offered at any level, they have an economic impact on the

local community and the United States holistically. Based on that observation, along with the unemployment rate currently at 3.6% (BLS, 2022) as of May 2022, one can correlate that engaging high school students through apprenticeships can prepare and position them to fill vacant roles in organizations across the United States, with the desired skillsets.

To further acknowledge and back up the research conducted, the study will also use a case study, which is meant to be complimentary to the second part of the study. Structured interviews and data analysis will be conducted within of the largest school districts in North Texas.

3.5 Population and Sample Size

The population selected for this study was split into two (2) groups:

Superintendents, CTE Heads, & school district administration and parents of high school seniors across the United States. These groups were also selected to obtain and analyze the perspectives and responses necessary to answer the research questions. Surveys will also be utilized to identify trends to support and answer the research questions. Using multiple sample strategies, the purpose is to gather enough sample size across the population to answer the research questions, draw respective conclusions, and find a statistically significant result (Institute for Work & Health, 2008). Based on the sample size, this research study gives an initial look across the United States and the apprenticeship landscape. The sample size was determined using the below approaches:

1. Determine the number of high school apprenticeship programs within the United States (based on sample size)
 - a. As there is no public record of all high schools that provide apprenticeships in partnership with organizations, the decision was made to use a purposive sample strategy to find a ‘representative’ sample (Vehovar et al., 2016). 261 public school districts were selected, or 2% of the total 13,452 public school districts in the United States, as shared by the National Center for Education Statistics (2020.)
 - i. Total population size: 13,452 public school districts
 - ii. Sample size: 261 School Districts
 - b. 261 public schools across the United States were surveyed to identify whether they have an organization-led high school apprenticeship program and gather the necessary statistics tied to financial, industry, etc. (if applicable)
2. Assess the number of students who enroll in a high school apprenticeship program
 - a. In October 2020, it was reported that there were approximately 9.2 million students enrolled in high school, according to the US Bureau of Labor Statistics (2021). Using a confidence level of 95% and a margin of error of 1%, the sample size selected was 50. Depending on the number of responses, the margin of error or confidence level may increase and margin of error may decrease.

- i. Total Population Size: 9,200,000 high school students
 - ii. Sample Size: 50 parents of high school seniors
 - b. Details of 50 high school seniors to be surveyed through their parents to identify if organization-led high school apprenticeships were offered and, if yes, whether they participated and the details of the program.
3. Number of jobs offered to high school graduates that took part in apprenticeships
 - a. The schools that offered apprenticeships to high school students, how many of them received job offers after graduation

3.6 Participant Selection

In this study, there are three (3) different types of participants: Superintendents and principals, parents of high school students, and school district administration. These participant groups were selected given the topic and relevant knowledge pertaining to the research questions.

3.6.1 Superintendents and Principals

Superintendents and Principals were chosen using a purposive sample strategy.

Purposive sampling, a nonrandom technique, is the deliberate choice of a participant due to the qualities the participant possesses (Etikan et al., 2016). In this instance, superintendents and principals oversee the management of CTE programs which can result in students getting full-time offers through an organization-led apprenticeship program. Five high school districts were randomly selected from each state, aside from the District of Columbia and Hawaii, which both had one (1). This participant group

targeted superintendents primarily, but principals were reached out in the event superintendent information was not available.

3.6.2 Parents of High School Seniors

Parents of high school seniors were selected randomly through a survey through SurveyMonkey that was posted on social media and shared through various outlets. As high school senior emails are not publicly available and given the strict laws around surveying students directly in the United States, there is a reliance on the parents of high school students to answer the questions to give insight into their thoughts on the program and details of their students involvement in apprenticeships. High school seniors were selected as the majority of apprenticeship programs occur during the senior year of high school; therefore they would be able to provide the necessary information on whether or not they took part in a program or had the opportunity to, or weren't able to based on the school not providing one.

3.6.3 School District Administration

School district administration will be engaged only for the purpose of the case study within a large school district in North Texas, which includes the office staff and superintendent. Participants, outside of the superintendent and the head of the CTE program, were chosen randomly through a staff roster and agreed to take part in the study.

3.7 Instrumentation

For data collection purposes, the study will be broken into two parts to align with the research design: Qualitative (Surveys) and Quantitative (structured interviews & observations, as part of the Case Study). The study seeks to leverage new data through surveys coupled with action research; using subjects involved during the research phase to help examine the efficacy of the proposed solution of organizations engaging with high schools to provide apprenticeships. Surveys will be distributed to 50 parents of high school seniors and 261 school districts across the United States. Data collected will follow a cross-sectional time horizon as a subset of a population will be selected, and from those individuals, data will be analyzed to help answer the research questions at only one point in time (Olsen and St. George, 2004), 2022/2023 for the surveys and from 2017-2022 for the case study.

3.7.1 Surveys

Surveys were created using SurveyMonkey to allow for easy distribution and collection through an online format, along with data analysis for tabulation and graphical representation of data (Raju and Harinarayana, 2016). Online surveys allow flexibility, convenience, and a broader reach for respondents living in different parts of a country (Evans and Mathur, 2005). Two (2) surveys (refer to Appendix D) will be provided to approximately 50 parents of high school seniors and superintendents/principals from 261 school districts to gather the data. The questions asked will be similar, although geared toward different audiences. The purpose of the surveys is to show that there is a need for school districts and organizations to have apprenticeship programs. Surveys were

distributed through social media and email with selection criteria to capture accurate information.

3.7.2 Case Study

Case studies often confirm or challenge a theory (Tellis, 1997) and allows those investigating to retain holistic and meaningful characteristics of real-life event (Yin, 2009). The tradition of single-case research dates back to the 1830s (Hersen, 1990) and allows researchers to study complex processes over a very long period of time that would not be practical through multiple cases (Ozcan et al, 2017). Yin (2009) states that single case studies are eminently justifiable under certain conditions – when the case presents (a) a critical test of existing theory, (b) a rare of unique circumstance, or (c) a representative or typical case or when the case serves a (d) revelatory or (e) longitudinal purpose. In this descriptive case study, I will challenge the idea that there is a market for high school graduates in the corporate world and the need for high school apprenticeships while answering the objectives through structured interview questions, in accordance with the above justifications.

To protect the anonymity of the school district, it will be referenced as “a large district in North Texas” and “the school district” as anonymity and confidentiality of participants are central to ethical research as it pertains to social research (Crow and Wiles, 2008).

3.8 Data Collection Procedures

The study will use primary data from surveys and interviews and secondary data as part of the case study. The use of primary data helps gain high-quality data which can improve results (Taherdoost, 2021), and on occasion, as primary data is collected, new data is added to the existing store of social knowledge (Hox and Boeije, 2005). Secondary data is also important as it allows the researcher to analyze existing data collected by someone else (Smith, 2008). This helps to further build on existing research and contribute to new findings.

Using the five (5) question test outlined by Sapsford (2006) it was concluded that the use of survey research was necessary:

1. Is research feasible at all in these circumstances?
2. Is survey research the right way to approach the problem, to get the kind of answers that are required?
3. Is a survey feasibility here – would it yield valid conclusions?
4. Is it ethically appropriate to use survey methods here rather than some other approach?
5. Is it ethically and politically appropriate to carry out any form of research, given the research question and the social context?

Two main reasons for employing the internet as a tool in survey research are the economic advantage, compared to the cost of conventional pen-and-pencil surveys, and efficiency as data collection via the internet is fast (Selm and Jankowski, 2006). As mentioned in Section 3.7.1, there will be two surveys sent out to both the

superintendent's/principal's and the students. While the superintendent's and principal's email addresses are available openly on the internet, student emails are not. Using convenience or purposive sampling will result in the reliance of social media and word-of-mouth to distribute the parents of high school seniors' surveys in an uncontrolled manner (Schonlau, Ronald, and Elliott, 2002) to collect necessary data on their students.

Interviews are an important data gathering technique involving verbal communication between the researcher and the participant (Fox, 2009). Darke et al. (1998) stated that interviews are crucial sources of information as well as the primary data source for case study research (as cited in Patnaik and Pandey, 2019). Through conversation, a basic mode of human interaction, we get to know other people, their experiences, feelings and hopes, and the world they live in. In a research interview, knowledge is constructed in the interaction between the interviewer and interviewee (Kvale, 2012).

3.9 Data Analysis

In the first part of the study, as part of the case study, I will review the results from the interviews and analyze the apprenticeship program at a large school district in North Texas and how it has impacted employment, its students' direct economic value, and the micro economy. The data collected as part of this case study will also aid in highlighting the viewpoints of the school district administration, students, and parents on its high school apprenticeship program. By analyzing the apprenticeship model and employment impact, this will allow future researchers, school districts, and organizations to learn about the current high school apprenticeship landscape and how they can improve or get

involved. This descriptive case study will be used to better understand the situation and aid others in making similar decisions in another setting with similar features (Western Sydney University, 2016).

With the data I received, I will use descriptive analysis using SurveyMonkey to summarize the initial data to identify events correlated with the occurrence of a target response (Sloman, 2010). I will then use descriptive statistics to leverage the sample data to organize and analyze data through numerical and graphical techniques (Fisher and Marshall, 2009) and derive data trends, which can be applied to a broader sample (Marshall and Jonker, 2011) of school districts for future research. As part of this, I will look to identify correlations between responses of parents of high school seniors and school district administration regarding the need for organization-led apprenticeships.

In the second part of the study, the method of analysis and synthesizing primary data regarding students' apprenticeships will be conducted to understand the apprenticeship landscape across the United States based on the sample size and further extrapolate those results to identify the opportunities that schools and organizations are missing out on. In alignment with action research, the data from the survey results across the two (2) different audiences will be used to compile, analyze, and interpret through a pragmatic approach to provide a results-driven solution for organizations and school districts alike. This will contribute to existing research from other scholars and add value through new perspectives and theories.

3.10 Research Design Limitations

Ross and Zaidi (2019) stated that regardless of the format scholarship assumes, all studies have limitations which can represent weakness within the study that may influence outcomes and conclusions of the research. In this mixed methods study, the quantitative collection and analysis would result in a limitation due to the sample not being representative of the population (Theofanidis and Fountouki, 2018). The assumption is that the sample size of high school districts (including superintendents, principals, and parents of high school seniors) and their responses to the survey are indicative of the wider population and their stance on high school apprenticeships. Other assumptions include that all research participants responded honestly in the surveys and interviews and had the general and appropriate knowledge of organization-led high school apprenticeship programs, their purpose, and the impact it has on students and the community.

3.11 Conclusion

This chapter discussed the research design, methodologies, and data collection and analysis methods that will be implemented to answer the proposed research questions and objectives. The primary research methodology for this study was a mixed method approach, meaning both qualitative and quantitative methods, through in-depth interviews, observations, and surveys (Blackstone, 2018, pp. 8). This approach, coupled with primary data, allowed for newly gathered data to be compiled (Hox and Boeijs, 2005) to reflect the need for organizations to implement high school apprenticeships to

address labor shortages tied to the Great Resignation, COVID-19, or general unemployment for all levels of jobs.

CHAPTER IV:

CASE STUDY

4.1 Purpose of the Case Study

Vocational programs, CTE, P-TECH, and other programs of study help equip students with real-world skills and explore different career paths to provide real options for college and rewarding careers (Advance CTE, 2019). Case studies help to investigate and understand complex issues in real world settings (Harrison et al., 2017) and complements the first part of the study. A case study design was selected to be conducted in parallel with the mixed methods research study according to Yin (2003) as the approach aligns with the below (as cited in Baxter and Jack, 2008):

1. The focus of the study is to answer “how” and “why” questions;
2. You cannot manipulate the behaviour of those involved in the study;
3. You want to cover contextual conditions because you believe they are relevant to the phenomenon under study; or
4. The boundaries are not clear between the phenomenon and context

As requested by the Chief Executive Director of Accountability & Evaluation, ensuring anonymity of the school district and those who took part in it, it will be referenced as “a large district in North Texas” and “the school district”. Interview participants will be quoted through the Coding IDs listed in Table 3 below or as ‘Anonymous Informants’. Through the use of structured interviews, apprentice input, and a combination of primary and secondary data, the aim is to highlight the employment impact, or the impact of a given program in the community, of the apprenticeship

program at a large school district in North Texas and aide in answering some of the objectives and research questions proposed in the study. The case study will look across the last five (5) years between 2018 and 2023. The methodology for this case study followed the procedures outlined by Tellis (1997):

1. Design the case study protocol
 - a. Determine the required skills
 - b. Develop and review the protocol
2. Conduct the case study:
 - a. Prepare for data collection
 - b. Distribute questionnaire
 - c. Conduct interviews
3. Analyze case study evidence
 - a. Analytic strategy
4. Develop conclusions, recommendations, and implications based on the evidence

Interviews were conducted in-person or online, given the schedules or comfortability due to COVID-19, with up to 45 minutes per interview. Consent forms were provided ahead of the interviews and all interviewees agreed to the terms and provided their consent to be interviewed. Information was gathered from district administration and the CTE Head of the school district to demonstrate the employment impact that high school apprenticeships have had within the community. This is to better understand the apprenticeship situation and aid others in making similar decisions in

another setting with similar features (Western Sydney University, 2016). This, among the several other case studies conducted on similar programs, is a good representation of an apprenticeship program that can be replicated across the United States to drive value for the students in preparing them for the workforce.

The case study will be broken into five sections with the following details, utilizing details from the interviews and data analysis:

1. The Importance of High School Internships in the United States
2. About the large school district in North Texas
3. Apprenticeship Model
 - a. What is the framework used?
 - b. When was the high school program created, and what was the purpose of it?
 - c. Selection criteria for companies
4. Data Analysis: Employment Impact
 - a. Gather data on the number of students enrolled in the internship program by year
 - b. Assess the Career Out program and the effects on the students and organizations
5. Interview and Analysis
 - a. After an introduction and explanation of the research details with each participant, school district administration were interviewed about the program to understand the following eight (8) open-ended interview questions

As part of the interview, the school district administration were asked the eight (8) open-ended questions listed in Table 1 below.

Table 1

Interview Questions to Case Study Participants

Question No.	Interview Questions
1	Please state your name and position
2	Tell me about the school district
3	Did you see a need for the program in the community?
4	What was the response from students and parents? Did anyone disagree?
5	How do you promote this program to students and parents?
6	What has been the impact on the community from this program?
7	What advantages and disadvantages do you see with high school apprenticeship programs?
8	What do you enjoy most about the high school apprenticeship program in your school district?

4.2 Coding System for Case Study Participants

Coding systems are used as a qualitative data analysis strategy, assigning a descriptive label to allow researchers to identify relative content across the data (University of Illinois Library, n.d.). Table 2 below depicts the legend for the demographic data of the case study interview participants to mask identities and establish anonymity where required, removing any personally identifiable information. All participants also were provided with, given time to review, and signed consent forms to partake in this research study.

Table 2

Legend for Case Study Interview Participants and their Quotes

Case Study Interview Participant	Legend
Type	P: Participant; I: Interviewer
Gender	M: Male, F: Female, TF: Transgender Female; TM: Transgender Male; GV: Gender Variant; NC: Non-Conforming
Position	S: Superintendent; N: Principal; C: CTE Head; D: District Administration
Position Example	PFD = Participant is Female and part of District Administration

Table 3 below depicts the Coding IDs for the Case Study Interview Participants.

Table 3

Coding IDs for Case Study Interview Participants

No.	ID	Coded ID	Gender	Position
1	A01	PMC	Male	CTE Head
2	A02	PFD1	Female	District Administration
3	A03	PMD2	Male	District Administration
4	A04	PMD4	Male	District Administration
5	A05	PFD5	Female	District Administration

4.3 The Importance of High School Apprenticeships in the United States

Apprenticeships in the United States have been around for High school

apprenticeships since 1937 (U.S. Department of Labor, n.d.) and have come a long way from solely focusing on craft-trade jobs through a vocational program. They are also driven by economic, educational, and societal factors that have changed the definition of vocational education, and influence, how, when, where, and to whom it has to be provided (Lerman and Rauner, 2011). These programs were built on established relationships between the schools and employers to ensure what was being taught in the classroom mirrored the actual work environment. Grubb (1996) stated a school's relationship with employers is a critical component of a graduate's career success (as cited in Johnson, 2022). With the United States government passing laws around the expansion of vocational programs into what is known today as Career and Technology Education (CTE) which extends the format from craft-trades to include organizational partnerships in fields including but not limited to business, finance, marketing, and nursing.

CTE programs provide students with hands-on skill application (Forbes Coaches Council, 2018) and help give them exposure and experience within their respective industries of choice. High school apprenticeships create opportunities for students to gain hands-on experience and develop the necessary industry-needed skillsets to fill skill gaps for organizations and their communities. While the United States is still catching up to

other countries, high school apprenticeships are slowly gaining traction in schools (King, 2022) and becoming more common and valued by both students and employers.

High school apprenticeships provide students with the opportunity to explore their career interests and gain experience in their chosen field. Many students may have an idea of what career they want to pursue but may not fully understand what it fully entails. Apprenticeships allow students firsthand experience to learn about the day-to-day activities and responsibilities of professionals and to determine whether or not it is a good fit for them; this helps when they are applying for colleges to understand what major they should pursue (Torpey, 2015).

Not only do high school apprenticeships aid in understanding the different career paths available to them upon graduation, but they also provide students with a myriad of networking opportunities that can help them later on. By partnering with professionals, students can make connections to help them with seeking employment and succeed within an industry (Conway et al., 2012). It also helps with gaining recommendations, advice, and job opportunities that may not have been available to them otherwise.

In addition to networking, high school apprenticeships provide students with the opportunity to develop varying skillsets that can be transferred to any career field, which are sought after by employers (Nägele and Stalder, 2017). These skills include but not limited to communication, teamwork, problem-solving, and time management. By gaining experience in the workforce, students can learn how to effectively interact with others, work under varying amounts of stress, and understand the importance of deadlines which are all skills that can help them succeed in future careers and college. Kuh et al.

(2006) stated that students attending institutions that employ a comprehensive system of complementary initiatives based on effective educational practices are more likely to perform better academically, to be more satisfied, and to persist and graduate. While their study focused on institutions (post high school graduation), the same applies to school districts with high school apprenticeship programs.

A final aspect of high school apprenticeships is the positive impact that has on a student's individual growth and development. Parsons (2022) stated that professional development is gaining new skills through continuing education and career training after entering the workforce. While the statement is true, it's important to expose high school students to this earlier in order to give them a competitive advantage. By placing them in new situations and unknown territory, it provides a challenging environment that can help to establish a sense of independence and confidence and forces them to bridge the gap between theory and practice.

As CTE programs and apprenticeship programs continue to advance in the United States, it's important that all students, including those in Title 1 school districts, are able to partake in them. In the event apprenticeships are paid, it can have a tremendous impact on the lives of students living in Title 1 school districts. Apprenticeships are an alternate way to train workers with skills organizations need to help less-educated workers, such as high school graduates, move up the wage ladder (Lou and Hawley, 2018).

As research continues to expand on this subject within the United States, it's imperative that schools that don't currently have high school apprenticeship programs to create them and use successful models in established programs which will benefit the

students. There are many benefits to having these programs as seen in other countries around the world. Comparing to the European apprenticeship system, Hoffman (2011) stated that while some aspects of the [European] system may be distasteful for Americans such as separate vocational tracks and the early age at which students are required to decide a career path, there are many attractive features (as cited in Alfeld et al., 2013) such as:

1. Structured pathways with clear requirements, timelines, and outcomes leading from high school through postsecondary credential completion;
2. Employer and business leader engagement in design and support of effective pathways to careers;
3. Opportunities to engage young people in workplace learning;
4. Effective career counseling and guidance; and
5. New institutional structures at the regional labor market level to provide coordination, quality assurance, and sustainability.

In order for the United States to have a competitive advantage not only domestically but internationally, it needs to continue improving what is currently in place. Employers want a new kind of worker – one with a broad set of basic workplace skills including creating thinking and problem-solving abilities, as well as reading, communication, and computation which is key to the competitive advantage of America (Dole, 1989). Since 1989, not much has changed in terms of employers seeking employees with broad skillsets for entry-level roles. As the United States is in recovery from COVID-19 and job vacancies due to the Great Resignation, it's imperative that

school districts and organizations continue to partner to create and prepare students for the next generation workforce.

4.4 About the large school district in North Texas

With a mission to make everyone feel connected from the students, staff, to its communities, the large school district in North Texas spreads across 13 different municipalities and has over sixty campuses with approximately 50,000 students enrolled each year (Anonymous informant #1). The school district was established over 200 years ago and has since continued its commitment to providing quality education to its local communities (Anonymous informant #1). The school district strives to be a leader in innovation and providing limitless opportunities to its students. It is also a forward-thinking district with the right leadership, often bringing teachers with business experience. The planning and resource support helps to find ways to make programs better for students and the opportunities they are exposed to (Anonymous informant #4). The school district aligns state initiatives takes the stance of paving the way to show other districts how to do it versus waiting to follow suit (Anonymous informant #4).

The school district has a Career and Technical Education (CTE) department that serves approximately 13,000 students across the district per school year with a goal of providing real-world experiences and hands-on training to aid in identifying possible career opportunities for its student (Anonymous informant #2). For this to be possible, the school district partners with local organizations across 20 industries, including two incubators across two high schools (Anonymous informant #1). Of the 20 industries, data was only available for 10 as depicted in Table 4 below. With a variation of paid and

unpaid internships, the school district also receive grants that allow them to turn those unpaid apprenticeships into paid ones (Anonymous informant #5). These programs help to further bridge the gap between the theory learned in the classrooms and the actual practice in the field.

Table 4

Total number of industry programs and correlating organization partnerships within the school district

Industry	No. of Organizations/Representatives
A/V Production	7
Cosmetology	16
Culinary & Hospitality	6
Cyber Security & IT	2
Firefighter	1
Forensic Science	4
Graphic Design	4
Health Science (Pharmacy Tech)	1
Incubator (at two high schools)	3
Video Game Design	2

4.5 Apprenticeship Model

4.5.1 Framework

The foundation of the apprenticeship program is built on the structure set by the Texas Education Agency (TEA). The TEA is the state agency that oversees primary and secondary public education (Texas Education Agency, n.d.). The TEA requires school districts to have a minimum of a four-year plan established, CTE courses that are 45

minutes or longer to receive weighted funding (Texas Gateway, nd.), endorsement from organizations and other governing bodies, and specific programs of study; grouped courses (3+) within a concentrated area of study (Anonymous informant #1).

The second layer of the framework is built out by the school district aligning the current trends in the workforce and listening to the needs of organizations (Anonymous informant #1). Teachers in this school district are told to not refrain from an organization or industry that may be deemed controversial as long as it's work-appropriate and aligns to a course of study – essentially not to worry about shaking things up; i.e. a student who is aligned to a graphic design program wanting to intern at a tattoo shop. This allows the program to continuously adapt year-over-year and provides students the opportunity to engage in different, and upcoming industries, even if they are non-traditional.

The final layer is made up of apprenticeship opportunities and partnerships with local organizations. These programs provide blended opportunities of career out programs, organizations mentoring in the classroom, and hands-on programs (both paid and unpaid) that can lead to career opportunities upon graduation. The Career Out program is one to highlight as it has been ongoing for the last 4 years. This program allows students outside of the CTE program, once a year, to go onsite at an organization and spend the day shadowing and understanding what it takes to enter that specific field (Anonymous informant #1) and only applies to students that are not enrolled in the CTE program to give them the experience of going onsite at an organization (Anonymous informant #4). Due to COVID-19, the program was able to shift to a virtual setting which allowed for more opportunities outside of the one day of the year. This year, the Career Out program

serviced 600 students across 160 host sites (Anonymous informant #5). This provides the students with more exposure to different industries and organization and better equips them for the workforce.

As part of the framework, the school district leverages its CTE Advisory Board which provides decision-making in which are comprised of district administration, parents, postsecondary institutions, student ambassadors, business partners, and members of the community (Anonymous informant #1) through the following:

1. Current or relevant industry standard alignment within instruction
2. Course Sequencing
3. Curriculum alignment with industry standards
4. Curriculum, instruction and assessment
5. Postsecondary credentials
6. Teacher training
7. Work-based learning

4.5.2 When was the High School Program Created, and what is the Purpose of it?

The CTE program at the school district was officially created in 2006 (Anonymous informant #3), when the previous vocational education program was retired as part of the Carl D. Perkins Career and Technical Education Act was passed (ACTE, n.d.). The purpose of the program is to give students the opportunity to learn about career opportunities whether it be in the classroom or hands-on experience, the importance of college, and helping students find their passions (Anonymous informant #1).

4.5.3 Selection Criteria for Organizations

The school district selects organizations through three funnels (Anonymous informant #1):

1. CTE Head engages organizations to facilitate initial discussions on partnering
2. Teacher-led initiatives with the help of the CTE advisory board to advise on certain programs and organizations that fit the needs. Teachers also go onsite at organizations for visits and to understand expectations and “fit” into the program
3. Geographically close to the school
4. Organizations reach out to take part in the apprenticeship program

4.6 Data Analysis: Employment Impact

The employment impact, or the impact the program has had on the students and community, can be measured through many avenues. Apprenticeships help set the stage for students to learn about a new field, assess the employment impact of public investment (International Labour Organization, n.d.), and provide employment opportunities by creating or improving business associations and other institutions that can nurture the region’s entrepreneurs (Kapstein and Kim, 2011). While a job is not guaranteed to students who take part in the program, it aids in driving the local economy, even for a brief period of time. Opportunities will improve only as economies transform (Fox and Kaul, 2018) including both the micro and macro economy. Employment impact is directly correlated to economic impact, reflecting the degree of change of economic and social phenomena in time, which is an indicator to measure the economic operation (Cui et al., 2020). This section will look at the total enrollment of students into the school

districts CTE program and Career Out feedback and perspectives from students which can correlate to the employment impact of the program as well as the economic opportunities that present itself through these programs and aid in fighting unemployment in the United States.

4.6.1 CTE Program

From the data that was available, there has been an increase in enrollment into the school district's CTE program over the years. With data going back to 2020 the details were summarized holistically through 2023 (Anonymous informant #1).

1. Through May 2020, the CTE program averaged around 15,000 course enrollments across the 20 programs they offer; This number is not 15,000 students as some were registered for multiple CTE courses
2. Since August 2020, when the new Career Center was opened and the school district launched more CTE courses, they were averaging 18,000 course enrollments, an increase of ~83% in just 4 months
3. Last year there were over 15,000 individual students enrolled in the CTE program ranging from grades 7-12

Over the last 3 years, the school district has seen an increase of middle and high school students, mainly high school seniors entering the program. Taking into account the impact that COVID-19 had globally, it can be noted that through the adaptation of the program to a virtual setting, enrollment was not affected.

Stone and Lewis (2012) stated that understanding what is called career and technical education (CTE) in the United States should begin with recognition of the fact

that the United States has no national system linking education and the workforce (as cited in Stone, 2017); Rather, CTE today is a nonsystem built upon a series of ad hoc efforts that started in 1862 to address education for the workplace (Stone, 2017). While the statements made about the current state of CTE programs in the United States, the school district puts the hands-on experience and workplace readiness first, a model that can be replicated across the United States. Plank, DeLuca, and Estacion (2008) and Schargel and Smink (2021) state that individual academic and employment gains from high school completion successfully contribute to the welfare of a community through lower unemployment, increased payment of taxes, and reduced reliance on social programs that are associated with education (as cited in Gottfried and Plasman, 2017). CTE students and parents are more satisfied with their education experience as compared to those not involved with CTE by nearly every measure, from general satisfaction with school experience to the quality of their classes and opportunities for career exploration (Fitzgerald, 2018). School districts and its respective CTE programs, especially the one in this case study, help bridge the gap by providing courses and experiences that drive student motivation and exploration.

4.6.2 Student Feedback and Perspectives Post-Career Out Program

The schools Career Out Program, as discussed in section 4.5.1 provides students outside of the CTE program to shadow with their 46+ business partners for a day and allows them the ability to experience a day-in-the-life-of their desired industry. The program has been around since 2018 and typically yields a year-over-year growth of 13% of students participating and 16% growth with host sites participating as shown in Figure

2 and Table 5 below. The lower rate of host sites at the height of COVID-19 (2019-2021) resulted in lower than usual participation, however the data suggests that the number will continue to increase from 2023 onward when looking at the 2022-2023 data compared to previous years.

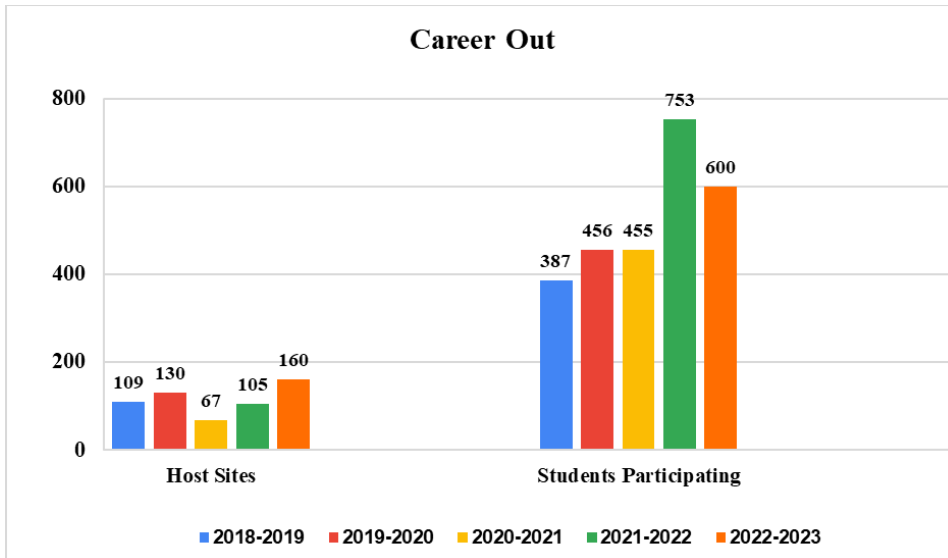


Figure 2
Career Out Program By the Numbers

Table 5

Career Out Year-over-Year (YoY) Growth

School Year	Host Site	YoY Growth	Students Participating	YoY Growth
2018-2019	109	0%	387	0%
2019-2020	130	19%	456	18%
2020-2021	67	-48%	455	0%
2021-2022	105	57%	753	65%
2022-2023	160	52%	600	-20%

The cumulative data of the survey yielded positive results for the 122 students and 30 business partners who responded and is a reflection of the program. The overview of this year's program demonstrated:

1. 96% of businesses rated their Career Out experience as a 4 or 5 (with 5 being AWESOME)
2. 96% of businesses said they would participate in the future (2 said "maybe")
3. 94% of in-person students rated their Career Out experience as a 4 or 5 (with 5 being AWESOME)
4. 99% of students said they would participate again or tell their friends

5. 3 seniors received laptops through [company name redacted] grant based on scholarship application and need

Of the variety of questions asked to students on the survey, two questions stood out that reflect the impact of this years Career Out program; “Did you gain a better understanding of educational paths to get to a career in the are you shadowed today?” and “Was there a significant take away that you got from your Career Out experience or do you have a story you want to share?”. The responses to these questions summarized what the students took away from the program and shows the motivation they have to potentially pursuing that industry and field of study. 122 students responded to the survey with 97% of students stating that they do have a better understanding as shown below in Table 6 below.

Table 6

Career Out Responses – Understanding of educational paths to get to a career

Day of Shadowing	Yes	No
March 3, 2023	79	2
March 4, 2023	15	
March 5, 2023	9	
March 6, 2023	7	2
March 7, 2023	4	
March 8, 2023	1	
March 9, 2023	1	
March 10, 2023	2	

Reading through the significant take aways, Table 7 below highlights the experiences that students had from understanding different jobs within a field to not

liking a specific industry after spending the day at the organization. The results from the survey yield insights into the student’s perspectives and demonstrates the impact that these types of programs have on both the students and local organizations who participate

Table 7

Key Quotes from Career Out – Significant Take Aways and Stories

Students	<i>Significant Take Aways and Stories</i>
Student 1	<p>“I loved how we were given a lot of details about everything and all our questions were answered! We really got a hands-on experience and a walkthrough of a day in their life on the job. It was an incredible experience and I’m grateful I got to be a part of it. I learned a lot and I’ll be taking it all in mind when settling for a job in the near future.”</p>
Student 2	<p>“I loved being able to see the different aspects that go into the fashion business and how crucial customer experience can be in terms of retail. Mr. [name redacted] as well as all of the other staff and managers at [company name redacted] were very insightful about their roles and how it all comes together to create a thriving operation.”</p>
Student 3	<p>“IT is something I’m really not interested in.”</p>
Student 4	<p>“I definitely agree that I had a terrific and life changing experience at the career out. To begin with I loved the way they work as a team to finish a project and they have a lot of communication and I also love working as a team and having communication with people.”</p>
Student 5	<p>“A significant take away is how [company name redacted] displayed the diverse paths that architecture can take you other than just the basic licensed architect. It was really interesting to see.”</p>
Student 6	<p>“I shadowed at [company name redacted] and it was wonderful! I learned that there is such a wide variety of jobs in any given career, and that it’s very possible to have a successful career that you LOVE!”</p>
Student 7	<p>“For my shadowing, I was able to better understand the atmosphere of this certain field. I was told how</p>

positive it was, but you don't really comprehend it until you experienced it yourself."

In return, the organizations that participated in this year's Career Out Program were surveyed with 30 responding out of the 160. The same question was asked, but focused on the individuals shadowed by the students and their experience, as shown in Table 8 below. Comparing the responses, it demonstrates the impact of the program on both sides. Job shadowing has a long history of utilization and is primarily considered a way for youth to become aware of the world-of-work through programs sponsored by schools or social organizations (Mader et al., 2017). Schmidt (2007) stated that opportunities for training and development are paramount in decisions regarding employee career choices. The Career Out program provided by the school district is truly "AWESOME".

Table 8

Key Quotes from Career Out – Business Partner Experiences

Organization	<i>Significant Take Aways and Stories</i>
Business Partner 1	"This was the first year for our department and we weren't sure what to expect. It turned out to be a great experience and we can't wait to host more students next year. The students were really engaged and asked a lot of questions, it was exciting to see their curiosity. It was also encouraging."
Business Partner 2	"Overall, it was a great experience for us as a hosting corporation. We were able to share our knowledge and insights about the industry and engage with motivated students. We look forward participating in similar events in the future."
Business Partner 3	"It was inspiring to see how curious and motivated the students were. They asked thoughtful questions and were genuinely interested in learning more about our industry and what we do as a company."

Business Partner 4	<p>This made it a rewarding experience for us as hosts.”</p> <p>“The school district is clearly doing excellent work in preparing students to face the Real World outside of the Academic environment. I am very pleased to be given the opportunity to assist with the development of the next generation of Architects, Designers, and other associated Construction Professionals.”</p>
Business Partner 5	<p>“When I was in school I don’t remember ever getting an opportunity to see the behind the scenes of how a company operated. It’s great that the school district has coordinated this program for students to expand their horizons!”</p>
Business Partner 6	<p>“The school district’s Career Out Day was an excellent experience for [company name redacted]. We enjoyed sharing information about our company and engaging with the students today. They asked great questions, and we look forward to hosting a group again next year!”</p>

4.7 Interview Results and Analysis

4.7.1 Introduction to Results and Analysis

When I started the interview process for one of the largest school districts in North Texas, I had an inkling of the foundation of its high school apprenticeship program and the types of responses I would receive from the interviewees, however what I got in return was so much more. From the Chief Executive Director of Accountability & Evaluation to the CTE Head and district administration, I was met with excitement and passion for how they develop their students and focus on not only them making it to graduation, but also investing in their future beyond secondary education. High school apprenticeship programs, such as this one, are only effective when all parties are involved and driven to the success of it and the students. The responses received paint a picture of innovation

and growth, while providing a blueprint to set the stage for other school districts to follow suit.

4.7.2 Did you see a need for the program in the community?

Understanding the interviewees perspectives on the need for the program in the community is critical to demonstrate to the students and their parents the “why” behind what the program and for school districts who are on the fence to implement such programs. Those interviewed all responded favorably on the need of the program and the benefits it gives to the students, their families, and the local community, as shown in Table 9 below. There is a need for these programs to continue to adapt to avoid becoming stale or missing the needs of the workforce and community. Siegel et al. (1987) stated that the communities in which we live are in a state of almost perpetual transition, the needs that give rise to the original objectives and program structure of an agency may no longer exist or be of the same magnitude when the program is finally implemented. The school district focuses on that constant change in order for its program to stay relevant and continue to build and partner with organizations to ensure the skillsets needed in the community are met. Cummins et al. (2006) describes a community as a curriculum, focusing on how educators work together to develop activities that explicitly build on the resources and abilities that children need in school. While their research was focused on the lower grade levels, it raises an important case that as the school district pours into the community and maps its students to specific roles it gives meaning to the curriculum.

Table 9

Key Quotes from the Case Study Interview Participants on the Need for the Program in the Community

No.	Coding	<i>Quotes on the Need for the Program in the Community</i>
1	PMC	<p>“We are building for people we can hire in the next 5 years [in regards to the community and attracting students back into the district to teach].”</p>
2	PFD1	<p>“There is a need for the next generation workforce to be work-ready... to experience jobs before dumping money into college and spending additional money to find out they don’t like what they are doing”.</p>
3	PMD2	<p>“If we are going to combat issues in the workforce, the goal is to get students exposed to as many experiences.”</p>
4	PMD3	<p>“Absolutely. It’s a great experience, paid or unpaid, and it gives students the ability to figure out what they want to do before going to college or directly into the workforce.”</p>
5	PMD4	<p>“While there is a need for the program in the community, the real need is a student-first focus with the end goal of impacting the community... how you make partnership with the community to bring them on board and partnering with the industry partners to support the students.”</p>
6	PFD5	<p>“Yes – education [within schools] does not always produce what the business needs. This program helps to bring the businesses to the table and help solve that issue.”</p>

4.7.3 What was the response from students and parents? Did anyone disagree?

From the interviews conducted, it was clear that there was more of a positive response from students and their parents on the school district establishing and building out its CTE program. Being able to see the excitement around students getting paid apprenticeships demonstrates not only to the school district, but to the parents as well that this program works. Many interviewees responded that it continues to be an uphill battle distinguishing a common-day apprenticeship program from a traditional craft trades only approach, as seen in the previous vocational programs. When talking on the existing offerings of the programs at the school district, some parents had stated that their students “won’t be a welder and will pursue an engineering career” unaware that the CTE program provides several opportunities in STEM. Battling the stereotype of vocational education and informing parents that we are so much more than that (Anonymous information #1).

Some negative responses surrounded parents upset with the logistics (transportation), which continues to be a struggle within the school district. Another scenario that teachers face are students are their passions not aligning with the expectations of their parents – which can create a negative view of the program. It’s often a hard sell on parents if they have different dreams or aspirations for their students (Anonymous informant #4). However the interesting aspect here is that the teachers in partnership with the school work with both parties to negotiate the opportunities and to pursue their passions.

4.7.4 How do you promote this to students and parents?

Program promotion is a complicated process that requires careful planning and deft execution (Nea and Peed-Neal,2010). While building a program may be easy, the act of promoting it can be cumbersome. As the school district is considered a Title 1 district, engaging students in a program like the apprenticeship one helps at-risk students and can help with designing and evaluating the existing relationship-interventions for students (Anderson et al., 2004). Promotion for the programs start as early as elementary school through the school district's STEM on Wheels program which impacts 14 of their campuses (Anonymous informant #5). During the interviews, respondents all discussed the need to involve the students, staff, and community to help drive the success of the program.

A major part of the program is helping to create the balance between extra-curricular activities, current jobs, and time management. PFM

The program at one of the CTE centers in the school district provides two introductory classes, focusing on introduction to business principles, and from there students are eligible for the third course, which involves being placed with a business partner for training and hands-on experience.

Table 10 below summarizes the key quotes from the case study interview participants to understand how they promote the program to students and parents.

Table 10

Key Quotes from the Case Study Interview Participants on How They Promote the Program to Students and Parents

No.	Coding	<i>Quotes on Promotion of High School Apprenticeship Program to Students and Parents</i>
1	PMC	“The teachers help to promote the program in partnership with business partners to meet the needs of both the students and what the job market needs.”
2	PFD1	“Counselors market the program to students and parents, word-of-mouth, and starting the conversation at lower grade levels.”
3	PMD2	“Marketing materials, social media, and looking through the lens of parents, students, and the community to build the brand so they understand the level of experience the students will get.”
4	PMD3	“Promotion of the program starts in 7 th grade with a goal to retain them through the program.”
5	PMD4	“Each apprenticeship cluster does their own form of marketing as they are content specific. Teachers share the intent of the programs at the beginning of the year, including practicum review along with the end goal of the program – promotion starts at the middle school level.”
6	PFD5	“We rely on our campuses to help drive the marketing for the programs. We are very protective of the word apprenticeship and want to maintain credibility... there is a vetting process in place along with teacher recommendations for students to join the program. The school district also leverages the Career Out program to align schedules with students beyond the CTE program to allow for wider exposure to the opportunities available

with our business partners.”

4.7.5 What has been the impact on the community from this program?

According to Lerman (2019), wage stagnation worsened by the country’s slow unequal recovery from the Great Recession [of 2008]. Comparatively, coupled with the more recent Great Resignation, all organizations are competing equally for a limited pool of prospective job applications which result in higher starting salaries and sign-up bonuses (Serenko, 2022). These two viewpoints highlight that while wage stagnation is low in the United States, organizations are more willing to give applicants the opportunity to more money upfront. The creation of jobs, and especially hiring high school graduates in low-income communities with a higher salary helps to pour back into the local community and economy. High school apprenticeship programs, such as the one provided by the school district, have an immediate impact to the community by well-equipping students with the necessary skill-sets to enter the workforce. Table 11 below summarizes the key quotes from the case study interview participants, looking at the impact on the community from the program.

Table 11

Key Quotes from the Case Study Interview Participants on the Impact on the Community from the Apprenticeship program

No.	Coding	<i>Quotes on the impact on the community from the apprenticeship program</i>
1	PFD1	“It gives the students the desire for more opportunities and allows for the program to evolve and look at different career clusters/industries.”
2	PMD2	“It allows business partners to have an avenue to hire potential candidates for

		entry level roles.”
3	PMD3	“It is absolutely valuable to the community because we grow our business partners and fill the needs/job vacancies... Many students get placed after the program.”
4	PMD4	“It establishes credibility and fills the need for employment opportunities in the community and skills gaps within local organizations.”
5	PFD5	“Businesses are thankful. Since COVID, so many businesses wanted to expand but couldn’t. The high school apprenticeship provided opportunities to staff them and give the students exposure.”

Providing additional insight, the below emails from a parents and quotes from business partners (Table 12 below) of the school district highlight the impact on the community that the high school apprenticeship and Career Out program has. Names and companies will be anonymized to protect the personally identifiable information.

Parent Email 1

“I wanted to say thank you for a job well done! I love that our district has incorporated hands-on experiences for our students. I had several internships in my career path while in college and it is so important for young adults to learn about their future job opportunities while they’re still young enough to make changes and adjustments. I know [name redacted] really enjoyed her day out and gave her insight to all of the different options there are within sports marketing and event management. I really appreciate the job you’re doing in engaging our community businesses. I’m a huge networker and love to encourage and support

our local community business owners to it's great to be made aware of other opportunities in our area to do so.

Keep up the great work!

[name redacted]"

Parent Email 2

“Hello [name redacted]! My name is [name redacted] and I am a parent in the school district. I just wanted to take a moment to thank you and the school district team for all your efforts in coordinating the Career Out event today. My son, [name redacted], is a junior at the high school and had the opportunity to go to Ford dealership in Lewisville, TX. As a student currently taking the Auto Tech class at the high school, it was so exciting for him to get a “behind the scenes” look at an automotive dealership. The staff were incredible and even treated the students to lunch as well as a souevnir bag with swag items... I just wanted to let you know how much I appreciate your efforts in bringing this opportuntiy to the students in the district. My son is already looking forward to next year!

Many thanks again,

[name redacted]

Table 12

Key Quotes from Career Out – Business Partner Comments

Organization	Business Partner Comments
Business Partner 1	“Thank you so much for allowing me to participate in this year’s Career Out. The students in my session were AMAZING. Their questions demonstrated a

Business Partner 2	<p>high level of engagement in the session and interest in the field of mental health.”</p> <p>“What an EXCELLENT program! Than kyou again for hosting and inviting us. GREAT JOB! So impressed by the event and collection of businesses and speakers. What an invaluable opportunity for the students.”</p>
Business Partner 3	<p>“Having the students here today was rewarding and refreshing. They were eager, intuitive, and a breath of fresh air. They came prepared to learn even having no idea what to expect.”</p>
Business Partner 4	<p>“It’s a really valuable tool for kids that are on the verge of going to college and trying to figure out what to study.”</p>

4.7.6 What advantages and disadvantages do you see with high school apprenticeship programs?

High school apprenticeship programs, and CTE programs, are often compared to the early vocational education programs, which can sometimes negatively impact a parent’s decision to enroll their student. Due to this, a there are a variety of reasons such as parental wishes for their student to stay in education (to go on to univeristy and further their education studies or remain in school to complete secondary schooling) as stated by Misko et al. (2007). This viewpoint is important as it aids in the perceived disadvantages of a high school apprenticeship that may impact a students ability to partake in a high school apprenticeship. While this question was tailored to the perspectives of the district administration, it helps to understand the external viewpoints compared to how teachers and district staff alike perceive these programs.

From the discussions held with the district staff, it was apparent that the advantages to high school apprenticeships outweighed the disadvantages. The ability for

a student to get early exposure to the workforce and different industries helps to prepare them for what to expect and later provide additional financial opportunities for their families.

Table 13 below summarizes the key quotes from the case study interview participants, looking at both the advantages and disadvantages of the program.

Table 13

Key Quotes from the Case Study Interview Participants on Advantages and Disadvantages of High School Apprenticeship Programs

No.	Coding	<i>Quotes on Advantages of High School Apprenticeship Programs</i>	<i>Quotes on Disadvantages of High School Apprenticeship Programs</i>
1	PMC	<p>“Employers get someone who is green and passionate to learn. It allows students to continue furthering their career journey and understand what professionalism is.”</p>	<p>“Not a disadvantage per se, but ensuring organizations have a sense of grace when dealing with the students.”</p>
2	PFD1	<p>“Students get hands on training, see the day-to-day, and helps them envision what they will eventually do... or what they don’t want to do.”</p>	<p>“Students unfamiliar with the time commitment required... students may be pressured [by peers, parents].”</p>
3	PMD2	<p>“Limitless [advantages]... it creates a realistic expectations in regards to workload and salary.”</p>	<p>“It’s hard to place a mass number of students with industry partners in regards to logistics [transportation, time commitment].”</p>
4	PMD3	<p>“It puts students above their peers. They have the practicality and</p>	<p>“A lot of the shops [trade-related] won’t pick up students until</p>

		experience that many don't have until after college."	they are over 18 due to insurance issues. Others include dealing with liability issues for graduates who are under 18."
5	PMD4	<p>"A great opportunity and provides real-world experience and gives true industry understanding and career path options. It provides students with a competitive advantage against peers in neighboring school districts."</p> <p>"The advantages far outweigh the disadvantages. Students are learning career skills that you don't get from traditional summer jobs. It exposes students to things they may not know existed. It also helps students make more informed decisions – gives a comprehensive approach to business, future references from business partners, and integrates the importance of networking and utilizing social media sites like LinkedIn to connect with those business partners."</p>	<p>"Student commitment continues to be a big disadvantage to the apprenticeship program across the school district when you have industry partners further away from the respective high school."</p> <p>"They are still high school students. There is a perception of spreading themselves too thin and businesses may be apprehensive to take on young students. Other than that, very rare for a disadvantage of these programs. Typically businesses look for college students to fill their openings."</p>
6	PFD5		

4.7.7 What do you enjoy most about the high school apprenticeship program in your school district?

It was great hearing the perspectives of the district administration in the school district describe what they enjoyed most about their high school apprenticeship program, as shown in Table 14 below. There is a sense of ownership, responsibility, and enjoyment for being the best for their students and providing them immense opportunities to prepare themselves for after high school. Xie et al. (2022) found that perceived teacher enjoyment predicted student achievement via students’ enjoyment, supporting the emotional contagion mechanism. In a similar study, it was stated by Bandura (1997) that the role of teachers’ enjoyment and confidence in effective pedagogy is proposed to be a vital one (as cited in Martin, 2006). It ties together that having a supportive group of teachers and the backing of a school district, that the students and their parents mirror the enjoyment and confidence in the programs they are taking part in.

Table 14

Key Quotes from the Case Study Interview Participants on What They Enjoy Most About Their School Districts High School Apprenticeship Program

No.	Coding	<i>Quotes on the what they enjoy most about their high school apprenticeship program</i>
1	PMC	“[It] gives students the opportunity to learn about college, importance of a degree, and helps them find their passion. The program also helps the students save time and money through the apprenticeships versus the traditional route [college].”
2	PFD1	“[It] gives students connections and relationships to find careers outside of the school district.”

3	PMD2	<p>“[It helps with] building relationships with industry partners, mentorship from business partners, and brings people into the schools from the industry to teach.”</p> <p>“It’s an awesome opportunity to see what students are learning and experiencing. It prepares them and gives skills they can use throughout their career... more marketable.”</p>
4	PMD3	<p>“Seeing the excitement on the students faces when they find out where they are apprenticing. The whole school comes together to support our students – example being the English Department will assist in writing resumes, conduct grammar checks, and host mock interviews. It’s great to watch the students grow over the years and be ready to enter the workforce.”</p>
5	PMD4	<p>“Seeing the kids succeed in a way they haven’t been given before. It helps them gain confidence in a new skill they wouldn’t have otherwise.”</p>
6	PFD5	

4.8 Recommendations

Case studies provide a mean to investigate complex situations with multiple variables under analysis (Querós et al., 2017). A recommendation from this case study is for future researchers to conduct a multi-case study to measure the economic and employment impact across the United States based on in depth research on specific high school apprenticeship programs. This will connect the dots with high school apprenticeship programs and look at the overall effectiveness for the students and the local community.

4.9 Limitations

This study focused on a single situation within one of the largest school districts in North Texas. It provided insights into how a high school apprenticeship program is set up and the impact in a local community, but it is not encompassing of the entire macro community within Texas. As Yin (2003) stated, when the researcher chooses to do a multiple case study he is able to analyze the data within each situation and also across different situations, unlike when a single case study is chosen (as cited in Gustafsson, 2017). A researcher can't generalize, or draw a conclusion, that because one high school apprenticeship program is having an impact on students and the economy, that one's close in proximity or in other states are similar. Stake (1978) stated that it is widely believed that case studies are useful in the study of human affairs because they are down-to-earth and attention-holding but that they are not a suitable basis for generalization (as cited in Krusenvik, 2016).

Another limitation is that many school districts prefer to remain anonymous, such as the school district in this case study. Due to this, it is hard to specifically highlight the efforts and successes of the program fully. Other school districts wanting to replicate the program's framework will have to utilize what exists today in specific high school apprenticeship programs in the United States and what is shared in this research study, rather than being able to connect with the school district directly. Bryk and Schneider (2002) and Tschannen-Moran and Gareis, (2015) stated that building trust between the actors within a school community not only enhances the flow of communication and the

sharing of ideas, it provides the foundation to collaborate and learn together solving complex challenges to serve students (as cited in Tennenbaum, 2018).

4.10 Conclusion

As the needs of the workforce continue to evolve and the growing desire from students to continue to learn, break free from generational inequity, and gain a competitive advantage against their peers or future competition, school districts need to continue to raise the bar. The school district positioned its high school apprenticeship well starting with its teachers, district administration, and even in the community. As they continue to take in students across the 13 municipalities it services and the business partner relationships it forged over the years, the school district continues to look across both traditional and untraditional apprenticeship opportunities to ensure its students have the ability to pursue a myriad of career choices. They are truly building the next generation workforce.

I am grateful to have had the opportunity to learn more about one of the largest school districts in North Texas and gain additional insights into the history and operations of its high school apprenticeship and CTE program. The hope from this case study is to educate and inspire school districts and organizations alike to create or enhance existing high school apprenticeship programs across the United States. For students to experience new opportunities and gain exposure to the workforce, high school apprenticeships become an essential part of the secondary school experience. Mark Twain (1885) stated whatever you have lived, you can write - & by hard work & a genuine apprenticeship,

you can learn to write well; but what you have not lived you cannot write, you can only pretend to write it (as cited in *A Writer's Inspiration*, n.d.).

CHAPTER V:

RESULTS

To preface the results section, skipped questions indicate either logic in the survey questions based on previous responses. As an example, answering 'Yes' to a school district providing senior students with non-trades work-study opportunities will provide respondents with a different set of questions than those who answer 'No' as shown in Appendix D. Skipped questions can also include questions tied to incomplete surveys as discussed in section 5.1 below.

The data analyzed was collected through SurveyMonkey and distributed to 261 school districts and 50 parents of high school seniors across the United States to gather their perspectives and facts surrounding high school apprenticeships. While all 50 parents of high school seniors responded to the survey, only 25 Superintendents, Principals, or CTE Heads responded. The survey results by the Superintendents, CTE heads, and Principals and the parents of high school seniors responded to the surveys across 19 States as shown below in Table 15 and Table 16, respectively.

Table 15

Superintendent/Principal/CTE Head Survey Respondents by State

State	Responses (#)
Florida	1
Minnesota	1
New York	1
Oregon	1
Pennsylvania	1
Rhode Island	1
Texas	1
Utah	4
Vermont	4
Washington	2
Wisconsin	1
Wyoming	1

19 respondents answered, 6 skipped

Table 16

Parents of High School Seniors Respondents by State

State	Responses (#)
Arizona	1
Arkansas	1
California	3
Colorado	1
Florida	1
Massachusetts	1
Michigan	1
Minnesota	1
Missouri	9
New York	1
Pennsylvania	8
Texas	15
Utah	1
Wisconsin	1

45 respondents answered, 5 skipped

One other item to note that is important to the study is that 17, or 68%, of the school districts who responded to the survey are designated as Title 1 as shown in Figure 3 below. Title 1 is a designation given to school districts that require financial assistance for children of low-income families to ensure that all children meet challenging state academic standards and school districts where a large number of poor children face particular challenges compared to those in wealthier districts (NCES, 2019).

Achievement gaps between disadvantaged students and their better-off peers are large and have existed for decades (Dynarski and Kainz, 2015). To see high school apprenticeship programs implemented in Title 1 districts provides an opportunity to the students and creates a positive impact in the local communities.

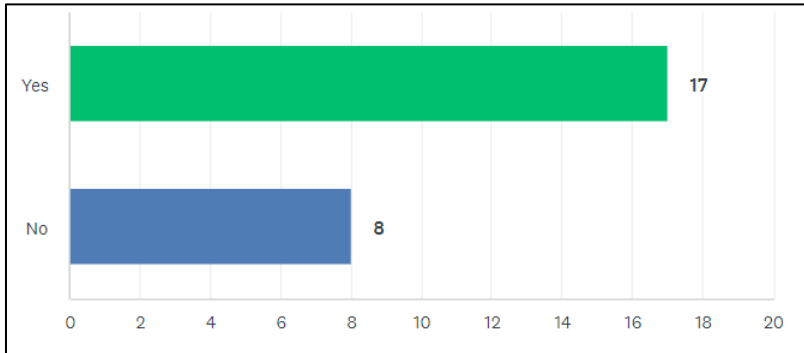


Figure 3
School Districts in the United States Designated as Title 1, School District View

25 respondents answered, 0 skipped

5.1 Addressing Incompletes in the Surveys

With a small fraction of the data collected containing missing information in the form of incomplete surveys, respondents fell into two categories:

1. Respondents did not press submit on the survey, but answered either the fielding question or the survey completely, deeming it incomplete
2. Respondents partially answered the questions and did not finish the survey

After a thorough analysis of the data sets from both surveys it was deemed that the incomplete responses did not impact the scope of the research and was treated properly to preserve the purpose of the survey, which is around whether or not school districts had high school apprenticeship programs. Lang and Little (2018) state that

treating missing data correctly not only ensures validity to the research but is also an ethical obligation of all research scientists.

5.1.1 Incomplete Responses in Superintendent/Principal/ CTE Head Survey

There were 3 incomplete responses received for the Superintendent/Principal/CTE Head survey. 1 of the 3 was completed, just not formally submitted. While the remaining 2 respondents did not answer every question, enough information was provided through their responses to show that both school districts provided senior students with non-trades work-study opportunities in their community.

5.1.2 Incomplete Responses in Parents of High School Seniors Survey

There were 4 incomplete responses received for the Parents of High School Seniors survey. 3 of them attributed to the fielding question with an answer of ‘No’ to having a high school senior and the respondents not hitting submit and 1 respondent attributed to not fully completing the survey.

5.2 What is the number of high school apprenticeship programs within the United States (based on sample size)?

While there is no concrete number of high school apprenticeships within the United States, information was sought through the distribution of the Superintendent/Principal/CTE Head – Apprenticeships survey [found in Appendix D] to 25 school districts across the United States. Of the 25, 18 responded to having a non-trades work-study opportunity for their high school students as shown below in Figure 4.

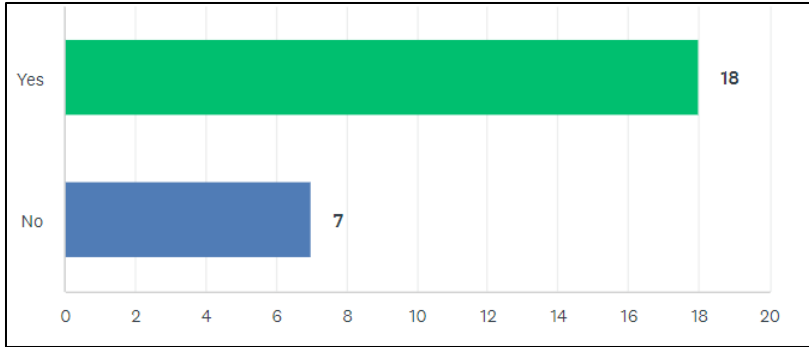
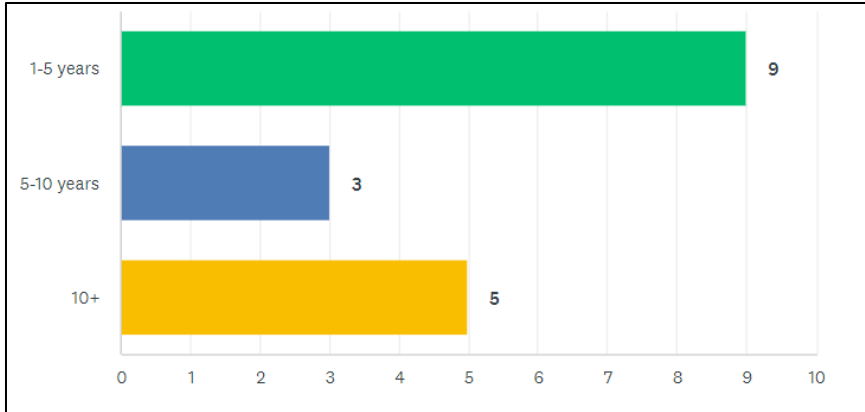


Figure 4
School Districts in the United States with Apprenticeship Programs, School District View
 25 respondents answered, 0 skipped

Based on the data collected through the survey, shown in Figure 5 below, 9, or 53% of apprenticeship programs had been in place for 1-5 years. This shows that by surveying the school districts in the sample size, high school apprenticeship programs across the United States are still in their infancy compared to international schools. Comparing the percentage to countries such as Germany, as an example, that have an established apprenticeship systems and yield an average of 54.5% of graduates from the U.S. high school equivalent entering the workforce through an apprenticeship training program (Elliott and Farnbauer, 2021).



*Figure 5
 School Districts in the United States and the Number of Years Apprenticeships Have
 Been In Place, School District View*

17 respondents answered, 8 skipped

Compared to the parents of high school seniors data, Figure 6 below suggests that only 10, or 22%, of school districts in their area have a high school apprenticeship program. The school districts may have a skilled trade program, but not a program where it partners with local organizations to provide in-office-styled learning, as asked in the survey question. When asked what type of classes or programs should be offered in schools, 20% of the parents of high school seniors responded with wanting an apprenticeship program led by organizations with 2% wanting general business/accounting classes to be taught in school. The remaining 78% of parents stated they wanted both to be offered for their students, as shown in Figure 7 below.

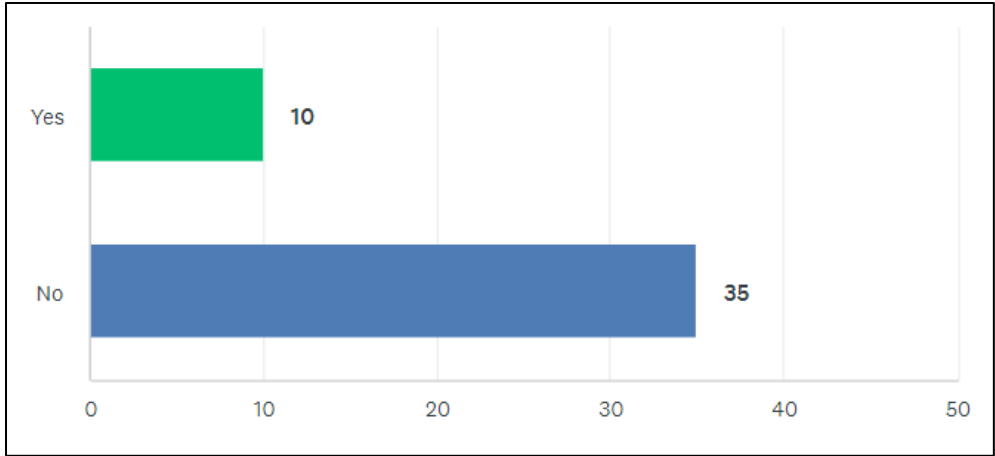


Figure 6
Number of Non-Skilled Trade High School Apprenticeship Programs Offered Across the United States, Parents View

45 respondents answered, 5 skipped

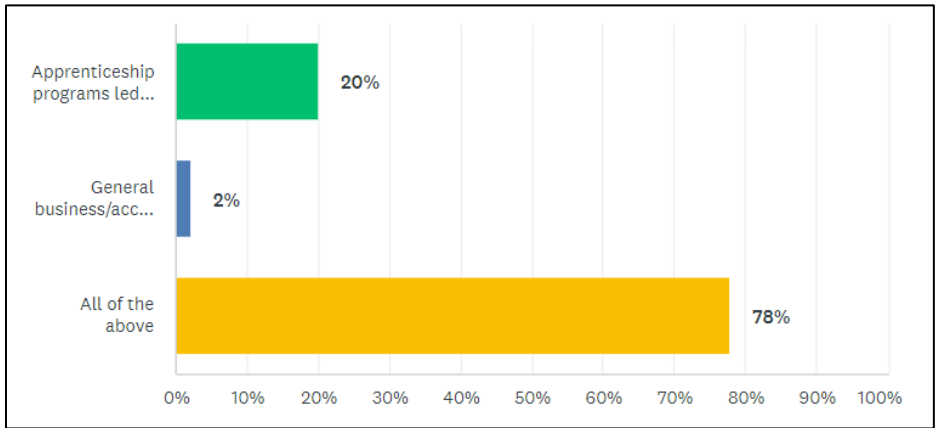


Figure 7
Types of Classes or Programs to be Offered in Schools, Parents View

45 respondents answered, 5 skipped

5.3 How many students are enrolled in a high school apprenticeship program?

Data collected to aid in this question were comprised of two surveys;

Superintendent/Principal/CTE Head – Apprenticeships and Parents of High School Senior surveys [found in Appendix D]. The purpose was to show the different data from school districts and parents and their student’s involvement in apprenticeship programs.

A variable to keep in mind is that the data is not a one-to-one correlation as both sample sizes were randomly selected and the high school seniors may or may not attend the same school districts surveyed.

By analyzing both data sets from the surveys, there is a correlation between 11 school districts having a low composition of the number of students who are enrolled in an apprenticeship program, shown in Figure 8, and 4 students enrolled from the parents survey, shown in Figure 9.

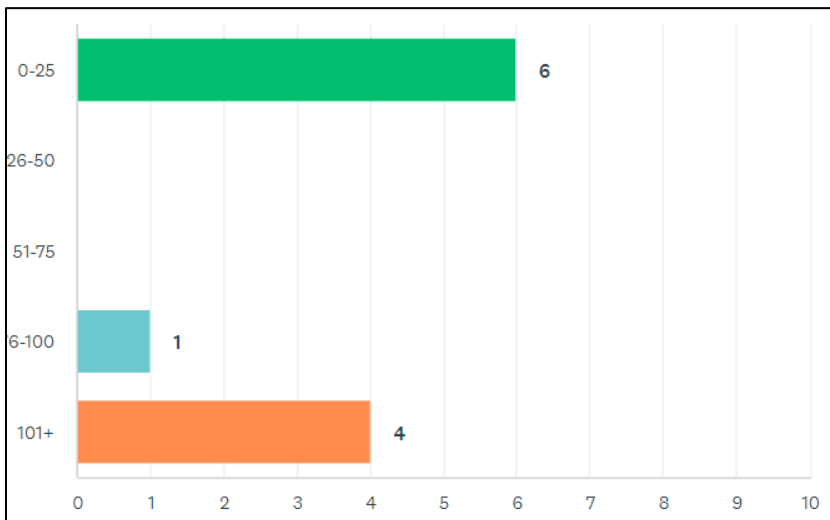
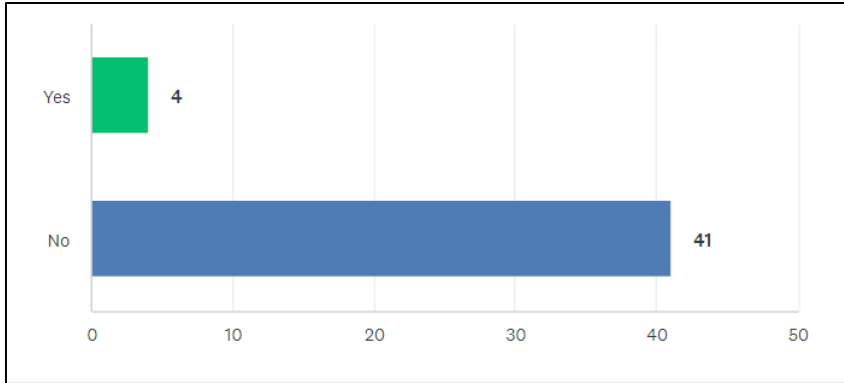


Figure 8
Number of Students Enrolled in an Apprenticeship Program, School District View

11 respondents answered, 14 skipped



*Figure 9
Number of Students Enrolled in an Apprenticeship Program, Parents View*

45 respondents answered, 5 skipped

Based on the sample size, the data suggests that 11, or 44%, of the school districts have high school apprenticeships in place and only 4, or 9%, of the students from the Parents of High School Senior survey were enrolled in a program. Comparing the data from Figure 6 above, of the 10 school districts offering a high school apprenticeship program only 4 students were enrolled with 41, or 91%, of students were not enrolled in a program. This could be due to many factors outside of the school district not offering a high school apprenticeship program such as students' involvement in (CollegeBoard, n.d.):

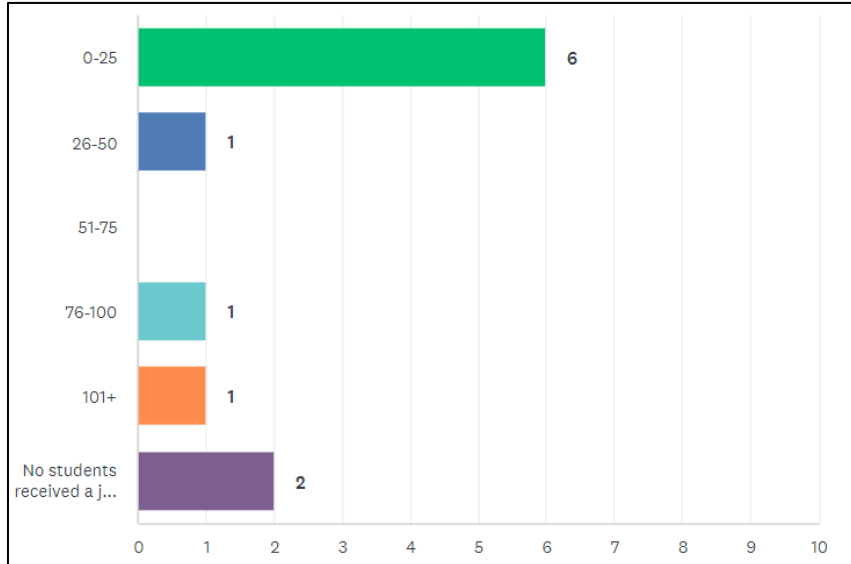
1. Sports teams
2. Student government
3. Special-interests clubs
4. Competitive academics, such as math league or DECA
5. Community programs
6. Independent activities

- a. Coding
- b. Hobbies

Other factors can also include lack of marketing of the program to parents or the misunderstanding of what an apprenticeship program means to them and their students.

5.4 What is the total number of jobs offered to high school graduates that took part in Apprenticeships?

Of the eleven of school districts who responded to the survey question 8, approximately 80 students received a job offer through their apprenticeship program, correlating with Figure 10 and Table 17. This was derived from taking the mean of the data set, using the highest numbers on the scale for each answer choice. While the number is low, it's consistent with the analysis of the previous research questions in 4.2 and 4.3.



*Figure 10
Number of Students Who Received Job Offers, School District View*

11 respondents answered, 14 skipped

Table 17

Number of Students Who Received Job Offers, School District View

Answer Choices	Responses (#)	Estimated # of Jobs Offered	Mean of Total Data Set
1-25	6	150	
26-50	1	50	
51-75	0	N/A	
76-100	1	100	80
101+	1	101	
No students received a job offer as part of our apprenticeship program	3	0	

When analyzing why school districts don't have apprenticeship programs in place, the data suggests that the biggest factor was due to not having enough information on how to set up the program followed by the cost to implement, as shown in Figure 11.

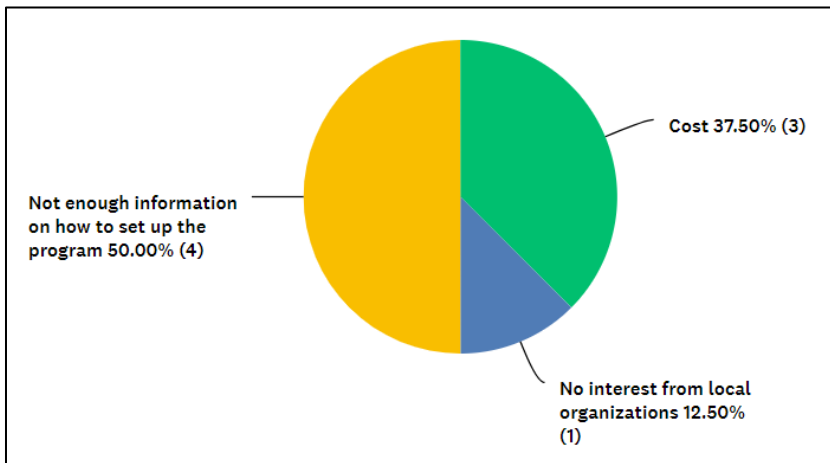
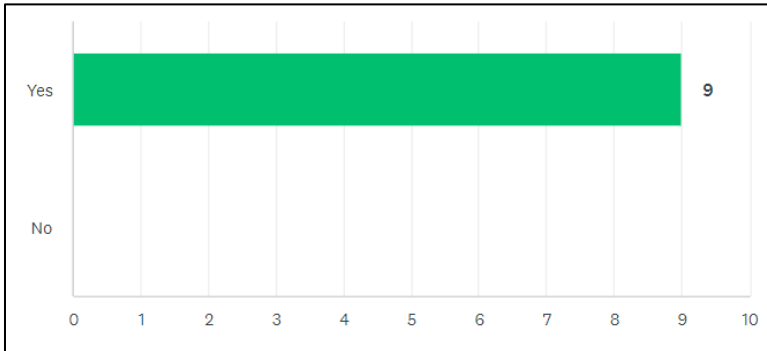


Figure 11
Why School Districts Don't Have Apprenticeship Programs, School District View

8 respondents answered, 17 skipped

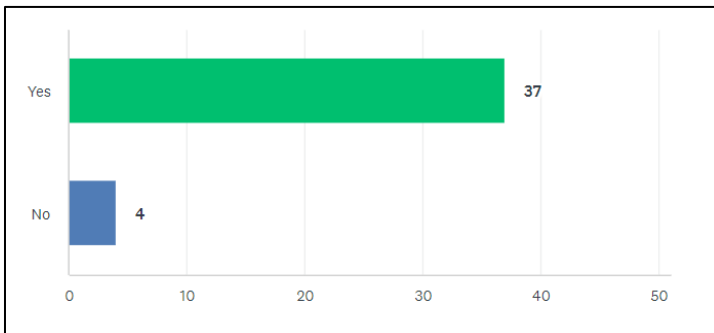
This data is also backed up by the school districts as 9 stated that if the student body were to show an interest in these types of programs they would be more inclined to create one in partnership with organizations in the community as shown in Figure 12 below.



*Figure 12
Creation of Apprenticeship Programs, School District View*

9 respondents answered, 16 skipped

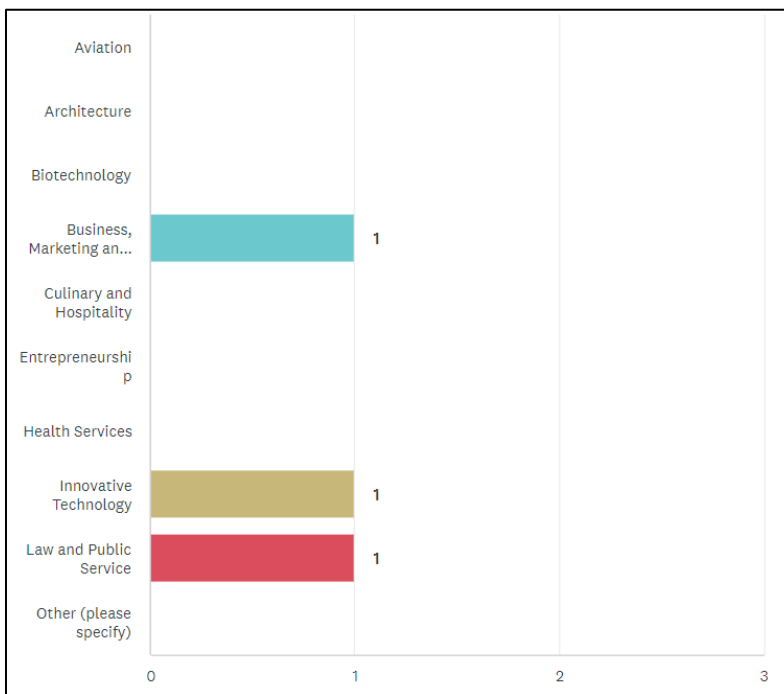
Comparatively, 37 parents of high school seniors responded that if their student had the ability to participate in a high school apprenticeship program would have given them more of a competitive advantage against their peers when securing a job post-graduation or getting into college as shown in Figure 13 below.



*Figure 13
Competitive Advantage of Students Engaging in Apprenticeship Programs, Parents View*

41 respondents answered, 9 skipped

Of the 45 parents surveyed, there were 3 high school seniors that participated in a high school apprenticeship did not receive a job offer through the program, noting that 1 respondent did not provide an answer. However, it gave a glimpse into the industries that the school districts focused on which were Business, Marketing, and Finance, Innovative Technology, and Law and Public Service. While the population of those in a program was low, the data suggests that their school districts provided a variety of options through local organizations to set their students up for entering the workforce as shown in Figure 14 below.

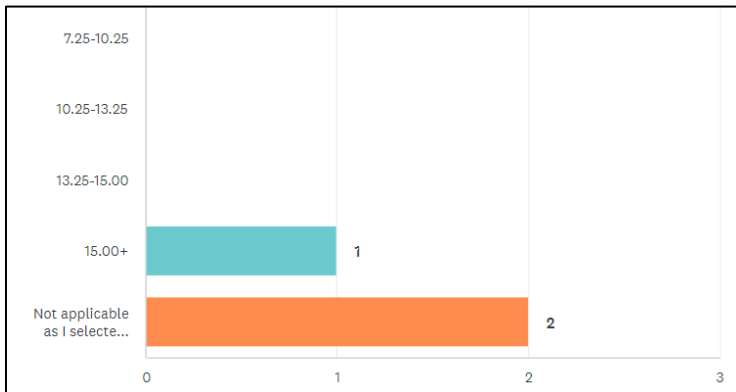


*Figure 14
Apprenticeships by Industry, Parents View*

3 respondents answered, 47 skipped

The last observation made from analyzing the data was that of the 3 respondents who participated in a high school apprenticeship program, there was 1 who was paid

more than \$15 USD as shown in Figure 15; 2 had responded previously with ‘No’ to their students being in a paid program. This is important to note as it shows that school districts not only provide these types of programs to their students in partnership with organizations, but that the apprenticeships are paid. From an economic perspective, the student, assuming they made exactly \$15 an hour, would be pouring approximately \$31,200 annually into the community – if the program was for 1 year.



*Figure 15
Paid High School Apprenticeship, Parents View*

3 respondents answered, 47 skipped

5.5 Summary of Findings

5.5.1 School Districts

The survey collector for School Districts via SurveyMonkey was opened from October 16, 2022 and closed on March 13, 2023. Of the 261 school districts that were engaged to complete the survey, only 25 responded, or 10% of the anticipated sample size with many choosing to skip questions. While it was a lower response than initially anticipated, the data is valuable as this was a first look across the perceptions of high school apprenticeships and the impact from the view of superintendents, principals, CTE

Heads and the parents of high school seniors. After analyzing the data and email conversations, this was due to three (3) factors.

1. At the time the superintendent, principal, and CTE Head email addresses were manually collected, there were 45 superintendents that were held the role in interim and moved out of the role or they left the district
2. The number of inconsistent forms needing to be filled out for many of the school districts that required committee reviews, often monthly, that were rejected
3. School districts hid behind the Family Educational Rights and Privacy Act (FERPA) despite the survey being anonymous with no personally identifiable information requested and stating that this research study did not align with the district mission statement

When asked if the survey respondents viewed apprenticeship programs as impactful to students' readiness for the job market, 17 of the 25 replied 'yes'. This is important and shows that across the United States school districts, where apprenticeship programs exist, are actively growing and expanding to meet the needs of students and preparing them for the workforce. Some comments include:

“Yes. It exposes them to real world soft skills that they will need in addition to the job related skills.” – Superintendent in Pennsylvania

“Yes – students are able to use work-based learning to not only prove learning in a flexible pathway towards mastery, they are also learning how to be an employee.” – Superintendent in Vermont

“Yes, these programs prepare students for the work they will do giving them skills (including soft skills) to take with them going into the job market.” –

Superintendent in Wyoming

“Yes. Our student internships provide real world experiences for our students in an area on student interest. The internships often provide opportunities for the students to obtain their first job.” – Superintendent, did not provide State

“Yes. Students who participate are better prepared for entering the workforce because of the experience.” – CTE Head, did not provide State

These school districts and leaders help to pave the way for other districts to create and implement similar programs to not only give their students a competitive advantage, but to attract new students to enroll in their schools.

5.5.2 Parents of High School Seniors

The survey collector for Parents via SurveyMonkey was opened from January 7, 2023 and closed on March 27, 2023. With a 100% response rate from the 50 parents of high school seniors, the data suggests that the impact and importance of these programs is shifting in a positive direction as depicted in Figures 16 and 17 below. Approximately 87% of parents responded favorably to their perception of high school apprenticeship programs helping towards securing a job post-graduation or acceptance into college and 80% responded to the usefulness of such programs for their students. After analyzing the data from the parents of high school seniors survey, the responses aligned with expectations that there is a need for these types of programs at the high school level.

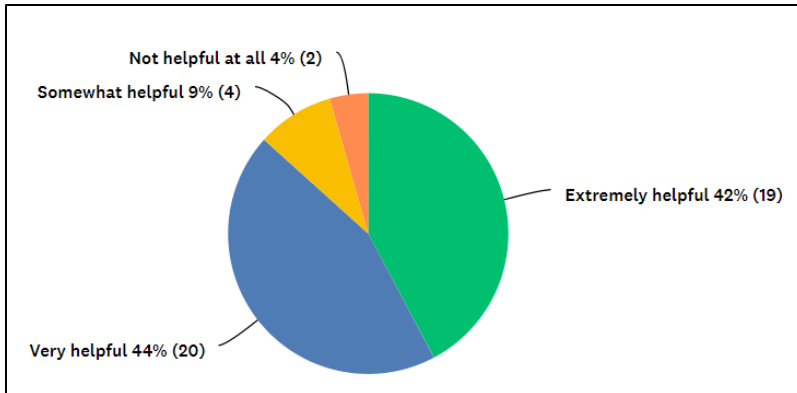


Figure 16
Perception on the Helpfulness of High School Apprenticeship Programs and Securing a Job Post-Graduation or Acceptance into College, Parents View

45 respondents answered, 5 skipped

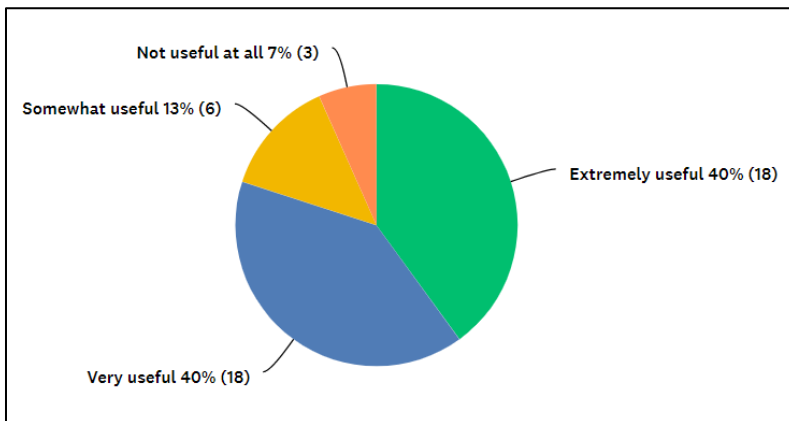


Figure 17
Usefulness of a High School Apprenticeship Program, Parents View

45 respondents answered, 5 skipped

Focusing on the 4% and 7%, respectively of parents who perceived high school apprenticeship programs to not be helpful in securing a job post-graduation or acceptance into college or the overall usefulness could be attributed to the misconception of high school apprenticeships and the role they play in developing skillsets, creating business relationships, and general applicability to multiple scenarios to prepare their students for

the world after high school. In a study on a Wisconsin apprenticeship program by Scribner and Wakelyn (1998), academically oriented colleges and universities have been reluctant to develop articulation agreements that would allow apprentices to earn advanced standing credit for their [students] experiences, which are crucial to a fully integrated program. Advocacy for high school apprenticeship from parents is important. The parental voice, discussed by Hirschman (1970), states voice is defined as any attempt at all to change rather than escape from an objectionable state of affairs (as cited in Martin and Vincent, 1999). Parents can speak up and push schools to implement high school apprenticeship programs rather than pull a student out of a school district into another that offers one. 90% of the parents surveyed responded that their students participation in a high school apprenticeship program would have given them more of a competitive advantage post-graduation as shown in Figure 13 above. With only 22%, as shown in Figure 6 above, of parents responding that their school offered a high school apprenticeship program, there needs to be more of a push for these programs to be implemented as there is demonstrated want from the public.

5.6 Conclusion

The results from both surveys depicts the current high school apprenticeship landscape in the United States, based on the sample size and number of respondents. As this was a first-of-its-kind research study, the reponses provided valuable insight into the perspectives of both school districts and parents of high school seniors. After reviewing the complete analysis, the data supports the growing need and interest for these types of programs to set up students for the workforce.

From a school district perspective, the data suggests that the biggest factors of why a high school apprenticeship program isn't in place is due to cost and lack of information of how to get one started. This aligns with the number of non-skilled trade high school apprenticeship programs that are offered across the United States from the Parents survey. Of the 45 respondents, 35 stated that their school district did not provide a high school apprenticeship program, as shown above in Figure 6. Of the 25 school districts who responded, 18 said they had a high school apprenticeship program in place, while the remaining 7 respondents said they did not have one, as shown in Figure 4 above. This is important to note as there does not seem to be a major push or alignment across school districts on how to set up such programs. Using Texas as an example, the Texas Workforce Commission (n.d.), through its ApprenticeshipTexas program, has dedicated 4 million dollars to support apprenticeships in middle skills careers ranging from construction, energy, financial services, information technology, and logistics, to name a few. There are several options to gather more information on forming these programs and government aid to support it. Coupled with neighboring school districts who have high school apprenticeships in place can share best practices and frameworks. While each program in a school district provides a competitive advantage to draw in new students each year, it's important to ensure the students and their futures are put first.

As the years continue to pass, laws implemented, and perception of high school apprenticeships grows, we should see an increase in the number of apprenticeship programs provided by school districts and students who enroll.

CHAPTER VI:

DISCUSSION

6.1 Discussion of Results

The results from the analysis provided insights into the school districts and perspectives of parents of high school seniors, based on the sample size. Not only does the data support the Objectives [pg. 30] of this research study, but it aligns with the content of the Literature Review [pg. 6]. The objectives of the study were to provide an understanding the impact and setting the blueprint of high school apprenticeship programs for school districts to take part or enhance existing programs. Examining factors that prevent school districts from partnering with organizations, exploring marketing tactics and messaging to attract parents and students alike into the programs, identifying the advantages and disadvantages of such programs, and most importantly, understanding the perspective of the parents of high school seniors on apprenticeship programs. Through the literature review, it is suggested that while several articles and research have been conducted on apprenticeships within the United States, discussions around the direct economic impact and employment impact on school districts and students who participate in organization-led apprenticeships across the nation are scarce. Compared with the apprenticeships in other countries such as Korea and Germany, the United States has a long way to go. The findings from the results bring this to light and open the door for future researchers and school districts to take action.

The key findings, and assumptions, from the results are:

1. Given the variability of responses across the survey questions, the data can be extrapolated to show that school districts are interested in learning more about creating apprenticeship programs within high schools, and those with existing programs are looking to expand the scope. In comparison 20 parents, or approximately 78% of the sampled group as shown in Figure 7 above, are also more inclined to see business related courses taught in classes along with organization-led apprenticeships within their school districts.
2. High school apprenticeship programs are both helpful and useful to students who seek to either enter the workforce directly after graduating or transition to college. It gives students real-world experience and exposure to the types of industries and jobs that exist within them to aid in decision making as they graduate.
3. High schools [and the wider school districts] have a fairly complex problem in terms of limited budgets (Tia et al., 2016), however with the help of Government aid through Perkins V and other CTE initiatives, it's imperative to provide students with a competitive advantage at an early age. 3 or approximately 38% of the school district representatives, as shown in Figure 11 above, stated cost as a barrier to implementing high school apprenticeship programs. Being able to join the dots and get the school districts tapped into these programs can make the difference for students and parents who want organization-led apprenticeships.

As discussed in the literature review, there is a gap in research on high school apprenticeships across the United States. Furthering this research can help drive change in school districts, communities, and organizations looking to partner with high schools to build out their workforce.

There is more work to be done. Both the U.S. Government and school districts have an opportunity to strengthen the workforce and lessen unemployment through the implementation of high school apprenticeships. Tapping into this market gives an early, competitive advantage for high school graduates and allows the United States to be more competitive against other countries.

6.2 Discussion of ‘What is the number of high school apprenticeship programs within the United States (based on sample size)?’

Based on the sample size 18, or 72% of the total respondents stated that their school district provides senior students with non-trades work-study opportunities. There are approximately 12.3 million students enrolled in high school career and technology education (CTE) programs in the United States (U.S. Department of Labor, 2020), however, this data does not include how many school districts have active apprenticeship programs with local organizations. The data from the analysis suggests that school districts are interested to learn about implementing high school apprenticeship programs across the United States, but are unaware of where to start or caught up in the cost to set up a career and technology education (CTE) or P-TECH programs.

6.3 Discussion of ‘How many students are enrolled in a high school apprenticeship program?’

I selected this research question as it helps future researchers, parents of high school seniors, and school districts understand the need for apprenticeship programs. The number of students engaged across the United States in these types of programs is low, but it’s consistent when compared against an international lens. In school districts where apprenticeship programs do not exist, parents should challenge school boards as to why they aren’t properly equipping their students for the workforce while their neighboring districts may provide these opportunities. It raises the question as to where the funds attributed to the Perkins V Act are being spent within the school districts and ensuring they provide the necessary competitive advantage for college and the workforce.

While the numbers are low, it’s indicative that these programs are gaining traction. Miguel Cardona, the U.S. Secretary of Education (2022) mentioned in his speech on career pathways and success that our schools must evolve quicker to meet the demands of the workforce today. Doing what we’ve done in the past won’t keep up with the pace of our country to create new high skilled jobs and compete internationally. There is a need for students graduating high school to have the competitive advantage as they enter college and the workforce. As more legislature is passed and school districts and parents alike understand the fundamental need for high school apprenticeship programs, we should see an increase in opportunities in the coming years.

6.4 Discussion of ‘What is the total number of jobs offered to high school graduates that took part in Apprenticeships?’

As more school districts adopt career and technology education (CTE) programs, we should begin to see an increase in this number. With recent legislature signed into law in 2018, the Perkins V Act targeted secondary schools in the United States (PCRN, n.d.). According to Dumford and Fletcher (2021), the Act funnels \$1.3 billion annually toward career and technical education programs for middle, secondary, and two-year college level programs (as cited in Brown, 2022). Theoretically, this should provide the necessary funds for school districts to create and implement career and technology education programs with high school apprenticeships across the United States. Of the sample size and respective 3 respondents who responded, none of them received job offers. While the questionnaire did not go into detail as to why, it can be assumed that the students

1. Selected a different path such as college,
2. The program was not set up to ensure an offer was given,
3. The organization did not extend an offer

6.5 Discussion of Case Study

The purpose of the case study is for it to be used as a tool for school districts that were looking to implement an apprenticeship program and needed to know where to start, the perceived advantages and disadvantages, and the impact it has on the students who partake in it versus their peers who didn't. It allowed me to highlight one of the largest school districts in North Texas and the effort put into designing an ever-transforming

CTE and apprenticeship program that not only sets its students up for success but creates a talent pipeline for local organizations. In my initial search, I reached out to 5 different school districts to conduct the case study (separate pool from those that partook in the superintendent survey); all but 1 agreed with the remaining using the Family Educational Rights and Privacy Act (FERPA) or that the research study did not align with the district's mission statement.

With over 50,000 students enrolled each year throughout one of the largest school districts in North Texas, the breadth of the course and career opportunities is no small feat. Maintaining a cohesive cycle and funnel of students into the high school apprenticeship program requires a robust process from marketing, teacher engagement, and partnering with organizations to participate keeps students attuned to what is possible with their careers. The key findings from the case study include:

1. Program integration and career insight starts as early as elementary school with a focus on STEM. Providing a sneak peak into career opportunities at an early age can help stimulate young minds to dream big, but realistically. Adolescents who have a passion for something in their lives can help develop the inner motivation they will need to move themselves forward as adults (Schwartz, 2020).
2. The school district has a strong framework for driving a sustainable high school apprenticeship program. At the core of the program, aside from the students, are the passion from the teachers to go out and seek new business partners to integrate into their apprenticeships. While the baseline structure is set by the Texas

Education Agency (TEA), there are several avenues that the district pursues as part of its framework:

- a. Aligning current trends in the workforce and listening to the needs of organizations
 - b. Providing blended opportunities of both in and out of classroom experiences; in-class mentoring from organizations, career out programs, and hands-on experiences
 - c. Utilizing the expertise of its CTE advisory board to align expectations and program definition and recruitment opportunities with local organizations in the community
3. Career opportunities are ever-growing for students year-over-year. The school district currently provides apprenticeship opportunities to over 20 industries and 46+ business partners from the traditional one's such as agriculture mechanics & welding, electrical & HVAC, auto collision, and wood manufacturing to newly focused industries such as animation, cyber security & IT, graphic design, health sciences (medical assisting & pharmacy tech), STEM, and video game design. The list continues to expand each year as the school district relies on teachers to leverage their networking circles to find new opportunities for students to learn about, gain hands-on experience, and learn the necessary universal skillsets to take their careers further.
4. The school district's Career Out Program provides students not enrolled in district's CTE program to experience a day-in-the-life-of within their desired

industry of choice. The impact of this program was shared by students and local organizations who took part all yielding the same experience; it was “AWESOME”. Programs like this grant students the ability to spend the day shadowing, asking questions, and motivating them to pursue a career they might not have known about prior to going onsite. The opportunities are limitless.

5. With the impact of COVID-19 from 2019-2021, the school district saw a drop in engagement from host sites of 130 to 67 (delta of 63), the number of students who participated remained the roughly same of 456 and 455 (delta of 1). This demonstrates the passion, determination, and mindset of the school district to ensure that students during those 2 years did not miss out on the opportunity to engage with organizations, albeit online. It gave the students the chance to experience working remote and the challenges that come with that during a pandemic. Kossek and Lautsch (2018) stated that prior to the pandemic, remote working was not a widely used practice (as cited in Wang et al., 2021).
6. There is a need for high school apprenticeships in the community. Utilizing the school district as a litmus test to the student, staff, and community perspectives strongly suggests the growing need for high school apprenticeship programs. As organizations recover from the impacts of COVID-19, the Great Resignation, and other events that impacted the United States over the last 3 years, the ability to have high school seniors partnered with local businesses helps to provide support in entry-level positions. An example of this is that the school district partners with local pharmacies and drugstores to give students experience within the retail

industry and temporarily filling long-standing open positions. This can aid in keeping small and larger organizations staffed, introduce a new talent pool with the ability to mold them to their needs, and in some cases, remain open.

The goal is to inspire and push school districts who are on the fence or unsure of implementing a high school apprenticeship program to see the impact it had on one of the largest school districts in North Texas. Looking at it from another lens, the goal is also to show organizations that not only are students wanting to have early exposure to the workforce and opportunities, but that school districts are wanting to participate in such programs. Through the data gathered, the school district interviewed as part of the case study demonstrates beyond the foundational level of how to implement and successfully market its high school apprenticeship program, given the enrollment increase of ~83% in just 4 months through its CTE program. Its ability to provide students and employers alike with the necessary skillsets for future growth and economic impact.

As seen in the case study, the advantages of high school apprenticeships outweigh the disadvantages. Providing their students within North Texas with the ability to have hands-on experience and exposure to workplace, it helps cultivate the need and passion of the students to continue pursuing an industry they are interested in. Trede and McEwen (2015) stated in their pilot study that early placement experiences have a positive impact on retention even when these experiences are negative. While this case study did not dive into the student perception of being in an apprenticeship and the challenges they faced, it's important to note that negative experiences exist and some students do drop out of the apprenticeship program due to a variety of reasons.

As the school district continues to take on new students and enroll more in its CTE and high school apprenticeship programs, it will have an impact on the local communities and ensuring students are set up for graduation and entering the workforce.

CHAPTER VII:

SUMMARY, IMPLICATIONS, LIMITATIONS, AND RECOMMENDATIONS

7.1 Summary

Majority of organizations focus on college-level apprenticeships to attract new, competitive talent, however they miss out on high school graduates who are an untapped market of knowledge, perspectives, and drive. Given the current state of the economy, The Great Resignation, and the global impact of COVID-19, there is a need to fill the open positions to fulfill the goal (Kellett, 2022) set by the U.S. Bureau of Labor Statistics to grow the Gross Domestic Product (GDP) by 2.3% annually (BLS, 2021). The central aim and purpose of the research questions and objectives was to showcase the employment impact of organization-led apprenticeships in the United States and highlight the need for organizations to focus on hiring high school graduates. By examining the factors that prevent school districts from partnering with organizations for apprenticeships, exploring the work that school districts are doing for their students to partake in apprenticeships, identifying the advantages and disadvantages of school districts having organization-led high school apprenticeships, and understanding the parents view and perspective on these programs helped paint the picture for school districts and organizations on the fence.

7.2 Implications

This research study was unique as it looked at two facets of the education system across the United States; School District administration and parents of high school seniors. With the data collected, it helped identify how school districts utilize its Career

and Technology Education (CTE) programs in partnership with organizations to drive the next generation workforce along with the perspectives of how parents feel these programs contribute to the growth of their kids.

It was important to conduct this study because as I began to research this topic, it became evident that the majority of the existing research focused on college apprenticeships or on middle to high school apprenticeship programs in specific states, and not across the United States. My goal was to pave the way for other researchers to further expand on my findings and contribute towards school districts preparing students for the workforce through organization-led apprenticeships and highlight the work being done to encourage parents and school district administration to speak up on the need for these programs.

7.3 Limitations

One of the main limitations of this research study was the bureaucracy within the education system in the United States, including the paperwork needed to gather non-personally identifiable information (PII) information through a survey. At the school district level, the average school form I filled out was three to six pages, which required every detail of the research being conducted, its purpose, and the instruments to be used. The lack of consistent forms across the United States school districts took up time, with some being approved immediately and others needing to go for monthly committee review. Toglia (2007) stated that while the Family Educational Rights and Privacy Act (FERPA) has many significant implications for career and technology educators, many administrators are uncertain on how it truly applies to their students. I saw this when

engaging with many of the school districts and how they had a blanket statement of the research study not aligning with FERPA or their district's mission statement. Schools can be a valuable resource of participants for research involving children, adolescents, and parents (Bartlett et al., 2017), if you can get passed the bureaucracy. While it is not surprising that a pattern of bureaucratic expansion and consolidation has been a feature of education systems (Humes, 2021), it allows for school districts to limit or prevent researchers from conducting specific studies that could highlight the work it does in the community and have a positive impact on the district and surrounding communities.

Secondly, the early stages of this research study included a third sample group of 100 organizations across the United States. Initially, I was trying to understand if these organizations partnered with local school districts to provide apprenticeship opportunities, what prevented them from facilitating such programs, and if there was interest to create a program. However, after trying several avenues to contact employees, Chief Human Resource Officers, Talent Acquisition, and those in similar roles it became apparent that even more time would be needed, which was estimated out to be an additional six months to a year. From the responses of the few who responded to my inquiry, there were significant approvals needed in addition to reluctance to participate and nonresponse. The goal was to have the perspectives of the school districts, parents, and organizations that are involved in apprenticeship programs to understand the needs of the community and how they could partner together using best practices.

Finally, another limitation was the sample size. Given that this was a first-of-its-kind research study looking across the United States, attempting to gather responses from

both school districts and parents of high school seniors within a short period of time without understanding the laws in place and bureaucracy meant that the responses would be scarce. Despite these limitations, it helped pave the way for further research and hopefully encourage them to go steps further at widening the sample pool and increasing the current results.

7.4 Recommendations for Future Research

Future research on this topic should look for replicability while also integrating in different research methods and viewpoints to paint a more holistic picture. There are many aspects that can be researched with regards to high school apprenticeships in the United States with a goal to build on one another. Understanding different research methods and approaches to assess replicability can be found in 7 core characteristics (National Academies of Sciences, Engineering, and Medicine, 2019):

1. Cova et al. (2018) states that attempts at replication of previous results are conducted following the methods and using similar equipment and analyses as described in the original study or under sufficiently similar conditions. Yet regardless of how similar the replication study is, no second event can exactly repeat a previous event.
2. The concept of replication between two results is inseparable from uncertainty, as is also the case for reproducibility, or obtaining consistent results using the same input data, computational methods, and conditions of analysis.

3. Any determination of replication (between two results) needs to take account of both proximity (i.e., the closeness of one result to the other, such as the closeness of the mean values) and uncertainty (i.e., variability in the measures of the results).
4. To assess replicability, one must first specify exactly what attribute of a previous result is of interest. For example, is only the direction of a possible effect of interest? Is the magnitude of effect of interest? Is surpassing a specified threshold of magnitude of interest? With the attribute of interest specified, one can then ask whether two results fall within or outside the bounds of “proximity-uncertainty” that would qualify as replicated results.
5. Depending on the selected criteria (e.g., measure, attribute), assessments of a set of attempted replications could appear quite divergent.
6. A judgment that “Result A is replicated by Result B” must be identical to the judgment that “Result B is replicated by Result A.” There must be a symmetry in the judgment of replication; otherwise, internal contradictions are inevitable.
7. There could be advantages to inverting the question from, “Does Result A replicate Result B (given their proximity and uncertainty)?” to “Are Results A and B sufficiently divergent (given their proximity and uncertainty) so as to qualify as a non-replication?” It may be advantageous, in assessing degrees of replicability, to define a relatively high threshold of similarity that qualifies as “replication,” a relatively low threshold of similarity that qualifies as “non-

replication,” and the intermediate zone between the two thresholds that is considered “indeterminate.” If a second study has low power and wide uncertainties, it may be unable to produce any but indeterminate results.

7.4.1 Sample Size

Studies are conducted on samples because it is usually impossible to study the entire population (Andrade, 2020) and is an important step in the research process because it helps to inform the quality of inferences made by the researcher that stem from the underlying findings (Onwuegbuzie and Collins, 2007). With more researchers studying the impact of high school apprenticeships in the United States and the impact on the economy and local communities, the ability to look across more than just the selected sample size of this research study may be considered. Expanding the sample size will help yield more results that can be analyzed to demonstrate the growing need for these types of programs that we see having great success internationally.

7.4.2 Leverage Organization Input

As discussed in the previous section on the implications, looking at organizations as a third facet to gather their thoughts on organization-led apprenticeships with local high schools and what they are doing to create a stronger workforce may be considered. Organizations are an important factor in future iterations of this research as it fills in the missing pieces attributed to understanding gaps in high school apprenticeship programs in the United States and why an organization may not be involved. Lack of responses from organizations are more likely to be an issue because researcher’s surveys are not directly government supported (Bloom and Van Reenan, 2010). Overcoming this obstacle

will yield good data that can be used to further the study. Organizations play a major role in high school apprenticeship programs as they set the foundation to bridge the gap between the theory and practice. Collaboration between school districts, institutions, and employers is beneficial for fostering work-related learning and increasing apprenticeships future employability (Bawica, 2021). Apprenticeships should primarily be considered as an educational and developmental opportunity for the students (Hora et al., 2018), but also a way for organizations to fill open entry-level jobs – its stake in this game is relatively high alongside the school districts as organizations are able to mold students at a young age to fit the needs of the workplace.

7.4.3 Obtain Students' Direct Input

At the time of the study, it was attempted to survey the students currently enrolled in high school apprenticeship programs, however given that the majority were under the age of 18 coupled with the school districts hiding behind the Family Educational Rights and Privacy Act (FERPA) it presented an obstacle in the research study. Irrespective of an anonymous survey, the school districts still stated it went against FERPA or that the study did not align with its mission statement. Gross (2014) stated that education is increasingly data-reliant and data-driven (as cited in Zeide, 2015). The issue with FERPA is that it provides certain protections for students' "education records" (Penrose, 2011). While anonymous surveys that don't constitute obtaining personally identifiable information or specific data that can be linked to a specific student, it's a matter of focusing the time on meeting with the school districts and hoping legislation gets passed to allow for ease of access to data for these types of research studies.

From a case study perspective, while highly reliable data can be obtained for some events that happened in the past (e.g. number of students enrolled in an apprenticeship program), there generally is a decay in quality as the recall period lengthens (Fetters et al., 1984). This tied directly with working with the large school district in North Texas as there were gaps in some of the long-term data requested due to various reasons. Having the ability to collect primary data directly from the students could have helped piece together the missing items, perspectives, and other information to build on the case study. Understanding current high school apprenticeship senior testimonials would provide additional insight to other school districts, organizations, and parents on the direct advantages, disadvantages, and day-to-day experiences faced by the student in parallel with their schoolwork. These stories can bring emotion which can be described as an engine of the brain activity and emotional engagement that leads to the desire to seek meaning. The opinion of Boström (2008) was that the human brain learns best when facts are embedded and new skills are grounded in natural contexts with practical examples (as cited in Eriksson, 2016).

7.5 Conclusion

Revisiting the Literature Review [pg. 6], there is little written on the importance of high school apprenticeships across the United States. The two sections of the research study encompass both a look across the school districts and tie together the importance that these programs have on the schools, students, community, and economy. As more research is conducted on this topic, hopefully more interest in the creation and expansion of apprenticeships at the high school level and organizations begin to leverage this

untapped market. As universities start to partner with school districts to connect the dots on experience gained through apprenticeships and the existing college apprenticeship framework in place there can be a marriage between the two. Continuation of education is important and the same goes for skills and experience learned to better apply the concepts of the classroom, the theory, and implementation in the workforce, the practical side. This will not only prepare students at every level for entering the workforce, but allow them to pour back into their communities and families.

Part one of the research study looked at one of the largest school districts in North Texas to demonstrate the capabilities and outcomes of a well-established and ever-growing high school apprenticeship and CTE program looks like. It highlighted the benefits to the school district, students, parents, and the community and how it continues to expand its course offerings and apprenticeships based on the needs of students and the organizations it partners with to drive a sustainable program. Understanding the framework of successful high school apprenticeship programs can inspire and motivate school districts to use it as the foundation to grow and impact the local communities at both the macro and micro economic level.

Part two of the research study focused on the nationwide perspectives from both school districts and parents of high school seniors of high school apprenticeships. The data collected and analyzed demonstrated the growing need for these types of programs while providing insight into reasons why school districts do not have any in place. It showed the correlation between similar viewpoints on the subject and can be used to show school districts and organizations there is a need to collaborate for the sake of the

next generation workforce and address unemployment, skill gaps, and lessen the impact of generational inequity in our communities.

Peter Cappelli (2012) wrote in a *Wall Street Journal* article on why good people couldn't get jobs and many CEOs wrote in to say that the problem with hiring is that the American education system is so bad. As the United States works towards maintaining a competitive advantage in the workplace compared with other countries, it will need to address the shortage of skilled labor and the growing threat of foreign competition (Rikle, 2012). The government, school districts, and organizations within the United States need to do more to pass legislation, build out CTE and apprenticeship programs across the United States, and leverage the untapped talent pool of high school graduates to fill entry level jobs.

Restating that this was one of the first studies to look across the United States, this research study aims to be used as a benchmark for further research. As Sir Isaac Newton (1675) stated if I have seen further it is by standing on the shoulders of giants, there have been many researchers before me, both domestic and internationally, who paved the way for this research to be possible such as Decker, Lerman, Muehlemann et al., and Murillo et al. to name a few. Educational research is important for the future and ensuring students have the ability to learn about the many career opportunities in the world today and how they fit into the puzzle of the workplace.

As high school apprenticeships continue to rise in the United States, school districts and organizations need to partner together to develop the next generation workforce. While many Americans are still familiarizing themselves with high school

apprenticeships in the United States, it's important to expand the use of this highly effective training model that can help our nation meet the demand for skilled workers, create pathways to well-paying careers for unemployed young workers, and give American businesses a competitive edge in the global marketplace (Olinksky and Ayres, 2013). The study's findings through the surveys and case study show a growing interest for organization-led apprenticeships across the United States and that while many school districts included in the sample size are engaged in some form of this, there is more work to be done.

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APPENDIX A
SURVEY COVER LETTER

Superintendent/Principal/CTE Head Survey – Apprenticeships

Superintendent/Principal/CTE Head Survey Questions for the research project ‘Integrating Apprenticeships within High Schools in the United States to Drive a Stronger Workforce’ by Jordan Cameron Thurston as part of the doctorate program at the Swiss School of Business and Management (SSBM). For the purpose of this research project, 'Apprenticeship' is defined as paid experiences (non-skilled/craft trade) that high schools offer in partnership with organizations to allow students to further bridge the gap between theory and practice.

Please note that all responses are confidential in nature, names or any other Personal Identifiable Information will NOT be used as part of this research project.

Parents of High School Senior Survey - Apprenticeships

Parents of High School Senior Survey Questions for the research project ‘Integrating Apprenticeships within High Schools in the United States to Drive a Stronger Workforce’ by Jordan Cameron Thurston as part of the doctorate program at the Swiss School of Business and Management (SSBM). For the purpose of this research project, 'Apprenticeship' is defined as paid experiences (non-skilled/craft trade) that high schools offer in partnership with organizations to allow students to further bridge the gap between theory and practice.

Please note that all responses are confidential in nature, names or any other Personal Identifiable Information will NOT be used as part of this research project.

APPENDIX B
INFORMED CONSENT



Interview Consent Form

Research project title: Integrating Apprenticeships within High Schools in the United States to Drive a Stronger Workforce

Research investigator:

Research Participants name:

The interview will take (enter amount of time). We don't anticipate that there are any risks associated with your participation, but you have the right to stop the interview or withdraw from the research at any time.

Thank you for agreeing to be interviewed as part of the above research project. Ethical procedures for academic research require that interviewees explicitly agree to being interviewed and how the information contained in their interview will be used. This consent form is necessary for us to ensure that you understand the purpose of your involvement and that you agree to the conditions of your participation. Would you therefore read the accompanying **information sheet** and then sign this form to certify that you approve the following:

- the interview will be recorded and a transcript will be produced
- you will be sent the transcript and given the opportunity to correct any factual errors
- the transcript of the interview will be analysed by (name of the researcher) as research investigator
- access to the interview transcript will be limited to (name of the researcher) and academic colleagues and researchers with whom he might collaborate as part of the research process
- any summary interview content, or direct quotations from the interview, that are made available through academic publication or other academic outlets will be anonymized so that you cannot be identified, and care will

be taken to ensure that other information in the interview that could identify yourself is not revealed

- the actual recording will be (kept or destroyed state what will happen)
- any variation of the conditions above will only occur with your further explicit approval

Or a quotation agreement could be incorporated into the interview agreement

Quotation Agreement

I also understand that my words may be quoted directly. With regards to being quoted, please initial next to any of the statements that you agree with:

	I wish to review the notes, transcripts, or other data collected during the research pertaining to my participation.
	I agree to be quoted directly.
	I agree to be quoted directly if my name is not published and a made-up name (pseudonym) is used.
	I agree that the researchers may publish documents that contain quotations by me.

All or part of the content of your interview may be used;

- In academic papers, policy papers or news articles
 - On our website and in other media that we may produce such as spoken presentations
 - On other feedback events
 - In an archive of the project as noted above By signing this form I agree that;
1. I am voluntarily taking part in this project. I understand that I don't have to take part, and I can stop the interview at any time;
 2. The transcribed interview or extracts from it may be used as described above;
 3. I have read the Information sheet;
 4. I don't expect to receive any benefit or payment for my participation;
 5. I can request a copy of the transcript of my interview and may make edits I feel necessary to ensure the effectiveness of any agreement made about confidentiality;
 6. I have been able to ask any questions I might have, and I understand that I am free to contact the researcher with any questions I may have in the future.

Printed Name

Participants Signature

Date

Researchers Signature

Date

Contact Information

This research has been reviewed and approved by the Edinburgh University Research Ethics Board. If you have any further questions or concerns about this study, please contact:

Name of researcher Full address

Tel:

E-mail:

You can also contact (Researchers name) supervisor:

- Name of researcher

- Full address Tel:

- E-mail:

What if I have concerns about this research?

If you are worried about this research, or if you are concerned about how it is being conducted, you can contact SSBM by email at contact@ssbm.ch.

Add names of any associated funding bodies and their logos

APPENDIX C

CASE STUDY INTERVIEW GUIDE

CTE Head Interview Questions

1. Tell me about Lewisville ISD (district name will be masked)
2. What is the mission/purpose of Lewisville ISD?
3. What framework was used to create the CTE program/internship programs?
4. When was the program established and what was the purpose of the program?
5. Can you tell me how many students (approximately) are enrolled in the CTE program/internship program each year? (spanning the last 5 years)

Case Study Participants Interview Questions

1. Please state your name and position
2. Tell me about the school district
3. Did you see a need for the program in the community?
4. What was the response from students and parents? Did anyone disagree?
5. How do you promote this program to students and parents?
6. What has been the impact on the community from this program?
7. What advantages and disadvantages do you see with high school apprenticeship programs?
8. What do you enjoy most about the high school apprenticeship program in your school district?

APPENDIX D

SURVEY INTERVIEW QUESTIONS

Screening Questionnaire – Doctoral Research

This is a screening questionnaire to be filled out by all participants deemed applicable by Swiss School of Business and Management (SSBM) and the Ethics Board for the doctoral study on 'Integrating Apprenticeships within High Schools in the United States to Drive a Stronger Workforce'. Please ensure to fill this out truthfully in order to maintain data integrity.

1. Which career applies most to your current profession?
 - a. Student (past or present)
 - b. Superintendent of a school district
 - c. Principal of a high school
 - d. CTE Head
 - e. School district administrative staff
 - f. None of the above apply to me
 - g. Other: open-ended response

For those who answered 'A-E'

Thank you for taking the time to participate in the screening questionnaire for the doctoral research of 'Integrating Apprenticeships within High Schools in the United States to Drive a Stronger Workforce'. Based on your response(s), you are eligible to participate in this research project. Please select **'Next' and 'Submit'**.

For those who answered 'F'

Thank you for taking the time to participate in the screening questionnaire for the doctoral research of 'Integrating Apprenticeships within High Schools in the United States to Drive a Stronger Workforce'. Unfortunately, you are not eligible to participate in this research project. **Please select 'Next' and 'Submit'**.

For those who answered 'G'

Thank you for taking the time to participate in the screening questionnaire for the doctoral research of 'Integrating Apprenticeships within High Schools in the United States to Drive a Stronger Workforce'. To determine your eligibility to participate in this research project, I will review your response and respond back accordingly.

1. Please provide an email address I can reach you at. This email will not be used or displayed publicly other than to respond back to you on your eligibility to participate in this research project.

Parents of High School Seniors Survey Questions

For parents who have seniors in high school:

1. Are you the parent of a high school senior?
 - a. Yes
 - b. No
2. What state does your student attend high school in?
 - a. Dropdown
3. Does your student plan to go to college?
 - a. Yes
 - b. No
4. Does their school offer a high school apprenticeship program? Please note that this is not the same as a skilled trade program, but one that partners with organizations to provide in-office-styled learning
 - a. Yes
 - b. No
 - c. I don't know
5. What classes or programs would you like to see offered in your school?
 - a. Apprenticeship programs led by organizations
 - b. General business/accounting classes
 - c. All of the above
 - d. Other: open-ended response
6. How do you perceive high school apprenticeship programs in terms of helpfulness towards securing a job post-graduation or acceptance into college?
 - a. Extremely helpful
 - b. Very helpful
 - c. Somewhat helpful
 - d. Slightly helpful
 - e. Not helpful at all
7. How useful would a high school apprenticeship program be to your student?
 - a. Extremely useful
 - b. Very useful
 - c. Somewhat useful
 - d. Slightly useful
 - e. Not useful at all
8. Did your student participate in a high school apprenticeship program?
 - a. Yes
 - b. No

For those who answered “Yes” to participating in a high school apprenticeship program

9. Was the high school apprenticeship paid?
 - a. Yes
 - b. No
10. If the above question was answered as ‘Yes’, what was the pay (in USD)?

- a. 7.25-10.25
 - b. 10.25-13.25
 - c. 13.25-15.00
 - d. 15.00+
 - e. Not applicable as I selected “No”
11. How long was the program?
- a. 1-6 months
 - b. 6-12 months
 - c. 12+ months
12. What industry was the apprenticeship program part of that your student participated in?
- a. Aviation
 - b. Architecture
 - c. Biotechnology
 - d. Business, Marketing and Finance
 - e. Culinary and Hospitality
 - f. Entrepreneurship
 - g. Health Sciences
 - h. Innovative Technology
 - i. Law and Public Service
 - j. Other
13. Did your student receive a job offer through the apprenticeship program?
- a. Yes
 - b. No
14. If Yes to the above, what was the annual salary offered (in USD)?
- a. 10,000-15,000
 - b. 15,001-20,000
 - c. 20,001-25,000
 - d. 25,000+
 - e. Not applicable as I selected “No”
 - f. Other:

For those who answered “No” to participating in a high school apprenticeship program

15. Do you think that your student’s participation in a high school apprenticeship program would have given them more of a competitive advantage to secure a job post-graduation or acceptance into college?
- a. Yes
 - b. No

Demographics

16. What is your student’s gender?
- a. Female
 - b. Male
 - c. Transgender Female

- d. Transgender Male
 - e. Gender Variant/Non-Conforming
 - f. Other:
 - g. Decline to answer
17. Which race/ethnicity best describes your student?
- a. American Indian or Alaskan Native
 - b. Asian/Pacific Islander
 - c. Black or African American
 - d. Hispanic American
 - e. White/Caucasian
 - f. Multiple Ethnicity/Other
 - g. Decline to answer
18. Which category below includes your student's age?
- a. 17 or younger
 - b. 18-20
 - c. Decline to answer

Superintendents/Principals Survey Questions

1. What is the current position you hold?
 - a. Principal
 - b. Superintendent
 - c. Other: open response
2. What state is your district in?
 - a. Dropdown
3. Is your school district designated as Title 1?
 - a. Yes
 - b. No
4. Does your school district provide an apprenticeship program with local organizations in the community? (Not to be confused with a skilled trade program)
 - a. Yes
 - b. No

For those who answered "Yes" to being in a school district that provides an apprenticeship program.

5. If yes, what are they called (i.e. work-study, internships, apprenticeships, co-op experiences, etc.)?
 - a. Work-study
 - b. Internships
 - c. Apprenticeships
 - d. Co-op experiences
 - e. Other: open response
6. Do these programs impact students' readiness for the job market? Yes, No, Why?
 - a. Open response
7. How many years has your apprenticeship program(s) been going on?

- a. 0-5 years
 - b. 5-10 years
 - c. 10+
8. How many students have been enrolled in the apprenticeship program (since inception)?
- a. 0-25
 - b. 26-50
 - c. 51-75
 - d. 76-100
 - e. 101+
9. How many students received job offers as part of their apprenticeship?
- a. 0-25
 - b. 26-50
 - c. 51-75
 - d. 76-100
 - e. 101+
 - f. No students received a job offer as part of our apprenticeship program
- For those who answered "No" to being in a school district that provides an apprenticeship program.

10. Which of the following best fits why your school district does not have a high school apprenticeship program with organizations in your community?

- a. Cost
- b. No interest from local organizations
- c. Not enough information on how to set up the program
- d. Other:

11. If your student body were to show an interest in such programs, would you be more inclined to create one in partnership with organizations in the community?

- a. Yes
- b. No

Demographics

12. What is your gender?

- a. Female
- b. Male
- c. Transgender Female
- d. Transgender Male
- e. Gender Variant/Non-Conforming
- f. Other:

13. Which race/ethnicity best describes you?

- a. American Indian or Alaskan Native
- b. Asian/Pacific Islander
- c. Black or African American
- d. Hispanic American
- e. White/Caucasian

- f. Multiple Ethnicity/Other
14. Which category below includes your age?
- a. 17 or younger
 - b. 18-20
 - c. 21-25
 - d. 25-30
 - e. 31-35
 - f. 36-40
 - g. 41+

APPENDIX E

IRB CONSENT FORM



SSBM Research Ethics <research.ethics@ssbm.ch>
to Josip, me ▾

Fri, Oct 14, 2022, 6:50 AM ☆ ↶ ⋮

Dear Josip and Jordan,

Thanks for submitting the form which is very complete.

As we understand high school participants may be in scope with agent less than 18. We approve your application based on the guidelines you have also provided in the form where the consent will be explicitly asked.

Just make sure that all of the forms are dully signed so no further issues can be observed.

Thanks a good luck.
SSBM Ethics Team.