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**GENDER INEQUALITY IN CAREER AND TECHNICAL EDUCATION: WOMEN IN  
NONTRADITIONAL TRADE AND INDUSTRY PROGRAMS**

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GENDER INEQUALITY IN CAREER AND TECHNICAL EDUCATION: WOMEN IN  
NONTRADITIONAL TRADE AND INDUSTRY PROGRAMS

A DISSERTATION APPROVED FOR THE  
DEPARTMENT OF EDUCATIONAL LEADERSHIP AND POLICY STUDIES

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## DEDICATION

This dissertation is dedicated to those with whom I am connected in spirit. These connections embody my past, present, and future. I was blessed to have been surrounded by inspirational and formative characters throughout my journey. I was taught hard work, dedication, and enthusiasm for life. These figures include my grandparents, parents, and close family. While I have numerous stories of childhood and teenage adventures with my grandpa and dad, through the dissertation process, I realized how foundational the women in my life have been. I have been blessed with two remarkable grandmothers who epitomize what maternal love and care should be. I have been blessed with an extraordinary mother who lives to serve others, rarely putting herself first and demonstrating firsthand that strength and compassion come in many forms.

Amongst these foundational women in my life has been my wife. Without a doubt, when asked how I could accomplish this task, I answered, my wife. I have stated that I have had the easy part throughout this journey. She has cared for the kids and house while I toil in solitude. I dedicate this dissertation to her as she has supported me throughout the journey. She possesses much of the same resiliency and determination as the interviewees from this study while also being an incredible mother. She inspires me on many levels, and I am proud to know her. She has sacrificed with me throughout this journey to get to this point. For this, I say thank you and love you.

I also dedicate this dissertation to my children. Along with their mother, they have sacrificed not always having me around through the journey. I hope I make them proud and inspire them to follow their hearts, find their purpose, and work hard for their goals.

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## **ABSTRACT**

This study explored why we have such an underrepresentation of women in our CTE trade and industry programs. The purpose of the research was to gain a deeper understanding and appreciation of the phenomena surrounding nontraditional students within traditional CTE trade and industry programs of study to discover practical and real-world applicable and equitable actions that can be taken to provide improved equalitarian opportunities. This general inductive qualitative study focused on five Oklahoma City metro area technology centers, each representing diverse communities, socioeconomics, ethnicities, and races. A total of ten nontraditional female students, two from each district, who were currently enrolled in a male-dominated program of study, and eight CTE faculty and staff members, including one counselor from each district, were interviewed one-on-one utilizing tailored protocol in a semi-structured setting. Three primary themes emerged from the data: The impact of gender roles and stereotypes, the reality that mentors, representation, and support matter, and lastly, the binding characteristic of resiliency among nontraditional students. The underlying conclusion of this research is that while legal protections prohibit discrimination based on gender, culturally ingrained gender roles and stereotypes are still active and pervasive in society. Actionable implications for practice include increased and intentional representation in marketing and recruiting efforts and support strategies such as peer support groups and regular check-ins with counselors.

## CHAPTER ONE: INTRODUCTION

Core to the American ethos is the idea of the American dream. In the land of opportunity, with history telling tales of we the people, as one with unalienable rights where separate is not equal, we are taught that dreams are obtainable. We witness almost daily on various media outlets the meteoric rise of individuals from nothing to something where we become nearly desensitized to the next entrepreneur or athlete striking it big. Core to these socialized paradigms are lessons of hard work, persistence, and dedication. With continuous effort, natural talent, and a little luck, we too can make it, elevate our status and forever change the dynamics of not only our lives but those around us. While this is entirely possible, the reality for most Americans is that circumstances surrounding their situations limit this possibility. These boundaries affect more than just the individuals themselves, representing a restriction of our collective capacity as a whole (Criado-Perez, 2019; Friedan, 1963).

Discriminatory behaviors and legalities, unfortunately, are well documented throughout the history of our country. Based on race, gender, nationality, religion, or any form of cultural identification, we as a people have seen firsthand the ugliness that can exist within us. This project focuses on gender and the accompanying biases or discriminatory practices that have devalued half of our population to the detriment of all. When history speaks of our country, it will surely tell of our capitalistic fixation, where innovation and improvement in all sectors are foundationally driven by individualistic monetary gain. While this presents as entirely self-serving and egotistical, in the big societal picture, these innovations benefit the good of all (Allen et al., 2016; Busch, 2018; Criado-Perez, 2019). So, imagine where we could be as a collective whole if we fully utilized the strengths of half our population. Such sentiment was echoed in the

2014 State of the Union Address by President Barack Obama when he stated: “When women succeed, America succeeds” (Obama, 2014).

Gender inequality has been a long-standing social condition throughout the history of our country. While it has been examined and targeted directly at the federal level with legislation, it has survived in varying degrees within society, influencing opportunity, particularly for the female population, both educationally and professionally. This is not to say that opportunities, through hard work and perseverance, have not been capitalized upon by the traditionally oppressed population. A glaring example is that of higher education degree obtainment. Data from the National Center for Education Statistics about higher education degree obtainment provides a clear picture of the success of women. Since 1982 women have earned more bachelor’s degrees than men. Since 1987 women have earned more master’s degrees than men, and since 2006, women have earned more doctorate degrees than men (National Center, 2021).

In the spirit and mindfulness of this information on successful higher degree obtainment, questions arise regarding comparatively low participation in other educational opportunities. This research seeks to understand a unique subset of the population within the educational system, the underrepresentation of women in our traditionally male-dominated Career and Technical Education (CTE) programs. The gender inequality gap and resulting discrepancy discourage an extensive societal group from participating in financially beneficial opportunities, directly affecting local economies and communities (Busch, 2018; Criado-Perez, 2019; Smith-Carrier et al., 2021).

### **Problem of Practice**

While we may be living in an age of legislative equality, there are still de facto underlying phenomena, either societally constructed or culturally embedded, that present barriers

to educational and occupational opportunities for women (Fluhr et al., 2017; Schuette et al., 2012; Weisgram et al., 2010). One of the unfortunate results of this is the gender inequality issue of socio-economic status (SES) present in the United States, which stretches beyond the measure of earned income to cover a variety of financial and social security considerations (Smith-Carrier et al., 2021). For example, in 2020, females made 83% of what males did, based on real median earnings for those who worked full-time, year-round positions (U.S. Census, 2021). This translates to the reality that if you are a woman working in the United States, you will, on average, make 17% less compared to a man. While there are various factors and accompanying questions in and around this statistic, such as to what degree occupational segregation plays, which will be further discussed later, the gender pay gap is a well-documented issue (Allen et al., 2016; Busch, 2018). Furthermore, these barriers operate and function within the context of traditional stereotyping or gender biases, in specific as objectification, discrimination, harassment, and even violence (American Psychological, n.d.; Bleiweis et al., 2020; Criado – Perez, 2019; O’Neil et al., 2020; National Center for Educational, 2012). The problem is so significant that the United Nations Human Rights Office of the High Commissioner has enacted two international human rights treaties barring wrongful gender stereotyping (United Nations, 1979; United Nations, 2006).

The risk of assigned gender stereotypes and roles hinders and restricts individuals from fully expressing their growth and identity in whatever definition one considers. According to Chang & Milkman (2020), “by working to overcome biases in decision-making that harm women’s outcomes in the workplace, organizations can take full advantage of the offerings of the entire population and reap the benefits of increased gender diversity” (p. 6). To truly make



the most of our democratic capitalistic systems and the lived experiences for all, we need our participants to be fully engaged, maximizing their potential.

At the core of this journey is the fundamental necessity for equalitarian access and knowledge of options for individuals in their professional development and growth. Directly working against these predispositions of social and cultural gender stereotypes and biases, in particular, occupational segregation, access to training and education within our CTE organizations provides a direct outlet for opportunity (Allen et al., 2016; Busch, 2018; Chang & Milkman, 2020; Nunner-Winkler et al., 2007; Wu & Cheng, 2016). Given this consideration, the problem of practice to be explored in this qualitative study is the underrepresentation of women in our traditionally male-dominated trade and industry programs in the CTE setting. For this research project, traditional trade and industry programs translate to what is often referred to as vocational education training. These programs include auto service, auto collision, carpentry, precision machining, and welding programs of study.

The problem of gender inequality within the traditional CTE setting is not only a societal and local economic concern, but for school leaders, we must be aware of the implications as it relates to the latest Carl Perkins V funding (Council, 2019). As institutions that receive Perkins funding, we are held accountable and measured against Core Indicators of Performance. Core Indicator 4 of Perkins V, Non-Traditional Program Concentration, addresses the enrollment data of nontraditional students in programs of study (Indicators, n.d.). This indicator highlights and gives credence to the essential nature of my problem of practice and its relevance to education.

## **Purpose**

Representing the framework of a localized scholar-practitioner, the purpose of this general inductive qualitative study is to gain a deeper understanding and appreciation of the

phenomena surrounding nontraditional students within traditional CTE trade and industry programs of study to discover practical real-world applicable and equitable actions that can be taken to provide equalitarian opportunities for all. Why is this purpose relevant? As the world moves further into its technological revolution, there is still a need and demand for traditional blue-collar workers. These positions may not capture the public's attention or be celebrated postsecondary career paths, but make no mistake, these careers are essential to our lives and keep our country moving forward. They often provide a quality income level and, just as significant, economic stability for the individual (Bureau, 2018; Bureau, 2019). Unfortunately, not all of our society take advantage of these opportunities, whether because of, amongst other factors, misconceptions, stereotypes, or cultural constraints on women (Chang & Milkman, 2020; Criado – Perez, 2019; Fluhr et al., 2017; Schuette et al., 2012; Weisgram et al., 2010).

As an experienced school leader and administrator over numerous CTE programs, I have seen firsthand the disproportionately low women enrollment numbers in our trade and industry programs. This ongoing trend has resulted in cyclical underrepresentation and accessibility of women into a workforce that offers high wages and self-sufficiency (Bureau, 2018; Bureau, 2019; Fluhr et al., 2017; Hogue et al., 2010). Regardless of the low enrollment and preconceived societal limitations, these nontraditional students often graduate with an exceedingly proportionate success rate than their male counterparts (Pellom, 2022).

This research aims to understand the gender equality gap for nontraditional women students at metro area technology centers within Oklahoma through the perspectives of the participants and stakeholders (See Appendix A). By exploring the problem of practice, I hope to identify and recognize potential barriers and ultimately discover practical, real-world solutions to promote change for this underserved population. As a scholar-practitioner, the conclusions

drawn from this study will heighten awareness of the gender inequality phenomena and help shift paradigmatic stigmas within the CTE system (Newman et al., 2003; Pellom, 2022).

### **Significance of the Problem**

The potential significance of the research findings would be to discover practical solutions to serve better and, in turn, provide more opportunities for an underrepresented population, women, in traditional trade and industry programs. Employment opportunities in these career paths offer quality wages and long-term economic stability for the individual (Fluhr et al., 2017; Hogue et al., 2010). Domestically speaking, these opportunities can afford shifts in family dynamics, creating economic self-reliance and balanced structures (Evans & Diekman, 2009; Wang et al., 2013; Weisgram et al., 2010). By opening doors to these career paths, we are potentially increasing the local workforce's talent pool, directly affecting the local economy (Busch, 2018; Criado-Perez, 2019; Smith-Carrier et al., 2021).

### **Nature of the Study**

The purpose of this study is to seek an understanding of the gender inequality gap for nontraditional students within traditional trade and industry programs of study. A qualitative methodology will be utilized to capture a genuine appreciation of this. Creswell & Creswell (2018) frame the researcher's reasoning for choosing this methodological design by stating, "the goal of the research is to rely as much as possible on the participants' views of the situation being studied" (p. 8). This approach enables obtaining data from participants in its most authentic objective state, the natural setting where the phenomenon exists (Creswell & Creswell, 2018). Maxwell (2013) reinforces this point by stating, "participants have far more experience with the things you are studying than you do, and may have important insights into what is going on that you can miss if you don't take their theories seriously" (p. 52).

The mode of inquiry, general (generic) inductive research, provides the researcher the opportunity to qualitatively collect and process data, driven less by a particularly defined approach such as grounded theory or phenomenology, with their binding processes, and allows more freedom to shift and follow where the data leads as deemed necessary (Creswell & Creswell, 2018; Liu, 2016; Thomas, 2006; Yin, 2016). According to Yin (2016), “strong, if not exemplary, studies can be conducted under the general label “qualitative research” or “field-based” study, without resorting to any of the variants. This kind of generalized qualitative research appears with regularity in the top academic journals and university presses” (p. 66). For note, the researcher has accepted and implemented the usage of the latest terminology on the design, a general inductive qualitative method. Through the dissection of the name, the researcher believes that it captures the essence of the design: to actively practice applied qualitative research in its general sense, bound only by the inductive relationship between data obtainment and theoretical discovery, producing results genuinely representative of the phenomenon.

According to Kostere & Kostere (2022), “when using generic qualitative research to conduct a dissertation, the researcher demonstrates validity by the extent in which the study represents the phenomenon that it was intended to describe” (p. 65). With this in mind, the mode of inquiry will permit the researcher to obtain qualitative data through multiple perspectives, all directly in and around the phenomenon, including interviews with CTE faculty and staff and nontraditional students. Additionally, the researcher will record observational field notes from the interviews to capture the experience. In a further attempt to authentically represent the localized phenomena, an individualized, tailored interview protocol will be undertaken for the two categories of participants, CTE faculty and staff, as well as CTE nontraditional female

students (See Appendix B & C). The intentional pursuit of varying data types and data saturation will aid the researcher in better representing the phenomenon of nontraditional students and their experiences navigating traditionally male-dominated programs of study. Ultimately, the very nature of the design lends itself to the discovery of insight not possible by the researcher alone while having the flexibility to evolve the direction or focus when necessary (Caelli et al., 2003; Liu, 2016; Thomas, 2006; Yin, 2016).

### **Research Questions**

Being a provider of hope and giver of opportunities has been a philosophical principle and foundational base within the researcher's "why," as discussed in Simon Sinek's 2013 *Start with Why; How Great leaders Inspire Everyone to Take Action*. It is from within this "why" that the researcher has chosen and will continue to stay within the education field (Sinek, 2013). He believes that our impact as educators cannot be understated and that what we do matters and changes lives. Our systems are not perfect, but it is with those who passionately pursued struggles for the betterment of others in the past and the drive to improve the future for those to come that this research is predicated. To attempt this further, the researcher will explore and examine the phenomena in and around nontraditional students within the traditional trade and industry programs, specifically from the participants' perspective. The central question is *why do we have such an underrepresentation of women in our CTE trade and industry programs?* Secondary questions will help further the breadth and width of potential findings, resulting in better research. It is with the addition of the following questions that further insight and discoveries will be revealed:

- What barriers exist for women entering traditionally male-dominated trade and industry programs?

- Where did the interest, inspiration, or idea of pursuing a nontraditional path originate for women who enter their programs of study?
- What can be done to increase the equitable enrollment figures?

### **Researcher Positionality**

The researcher brings with him philosophical worldviews and influences as any person does. An intentional explanation of the researcher's conceptual framework and positionality leads to a better understanding of the project. As Yin (2016) stated, "a worldview establishes the position, or epistemological location for conducting qualitative research – that is, the beliefs you hold about the ways of knowing what you know and how your research is intended to arrive at its findings and conclusions" (p. 15). Boiled down, this study intends to identify and find localized truths that will help remedy the problem of practice. The wording localized truths are intentionally used to represent the pragmatic middle ground between seeking universal truths and those only revealed through a lens of subjective lived experience. The researcher most closely adheres to this pragmatic worldview because knowledge and truth are closely tied to the participants' and researchers' subjective context (Creswell & Creswell, 2018; Holmes, 2020; Yin, 2016). Cherryholmes (1992) captures this sentiment well when he said, "pragmatists take seriously the assumption that we are historically and socially situated, that when we read the world we can never be quite sure if we are reading the "world" or reading ourselves" (p.14).

While a universal truth and solution for equalitarian treatment would be the most idealistic outcome, the researcher is a scholar-practitioner tasked with identifying a localized problem and working towards a localized solution. Upon initial review of the topic, it holds a transformative worldview due to the nature of the content, a social inequality issue that holds relevant political air, but this was not the researcher's intent (Creswell & Creswell, 2018). The

research project most closely carries a social justice adherence deeply rooted within feminist theory. The best explanation for the nature of the researcher's search for knowledge might be labeled as empirical or empiricism epistemology. From this particular paradigm, one believes that the best understanding of knowledge and truths is derived from firsthand experiences and objective realities (Kosso, 1991). This general definition of the researcher's epistemology is also a solid working explanation for the choice of methodologies, qualitative, as the researcher most desires data from the firsthand source of the study participants (Hofer & Pintrich, 2002; Maxwell, 2013; Toren & de Pina-Cabral, 2009; Yin, 2016).

### **Researcher Background**

The researcher's background and foundation come from my experience as a lifelong educator. Having spent the last ten years of my professional career dedicated to CTE in various roles, I am a big proponent of the system. Currently, I sit as a student services director, most closely resembling an assistant principal, at one of the largest technology centers in Oklahoma. I am vested in my district's success as I live within the boundaries and believe in our mission, preparing students to succeed.

As a male researcher, my background does not resemble that of the nontraditional students for whom I am studying. I have obtained degrees through the higher education pathway but have had countless amounts of experience in similar real-world applications of the students' programs of study. I have spent time in the construction industry in various roles, worked on equipment and vehicles of all sorts, and am a tactile learner, best suited to learning by being a hands-on learner. My interest in the study was spurred by watching nontraditional students enter our programs and master high-level dexterity skills quicker than their male counterparts. From

this, I would watch some succeed and fail in the programs, not because of their skill set but usually due to outside forces causing disruption.

### **Researcher Positional Disclosure**

As was mentioned, I have a decade of CTE experience in various roles, such as student, instructor, business and industry coordinator, and director of full-time programs. While my experiences have been diverse and exposure to the CTE statewide system plentiful, my professional CTE employment has all occurred within the Canadian Valley Technology Center district and, specifically, the El Reno Campus. This information is relevant because the Canadian Valley Technology Center district has been chosen as one of the data collection sites (See Appendix A). The researcher believes the Canadian Valley Technology Center district has much to add to the study as it represents an immediate environment for examining my proposed problem of practice that ruminates throughout the CTE system. For note, the researcher intends to obtain data from multiple campuses within the Canadian Valley district. Intentionality will be given to seeking insight or data from beyond the convenient location of my campus to others to ensure proper representation of the population. The Chickasha and El Reno campuses have various identical traditional trade and industry programs such as welding, auto service, auto collision, and precision machining. The difference is the communities they represent, Chickasha serving Grady County and El Reno serving Canadian County.

Providing a positional disclosure by the researcher is an intentional effort to demonstrate his mindfulness of potential threats to validity in the pursuit of producing high-quality findings. I need more than just discussing the decision to utilize my district of employment for data collection to ensure the credibility of my proposed methods, procedures, and study design. Practicing reflexivity is how the researcher can address the potential for biases and influences to



creep into data collection, ultimately tainting the concluding findings. Creswell & Creswell (2018) capture the essence of reflexivity when they state, “in qualitative research, inquirers reflect about how their role in the study and their personal background, culture, and experiences hold potential for shaping their interpretations, such as the themes they advance and the meaning they ascribe to the data” (p. 182). The researcher hopes this positional disclosure and adherence to practicing reflexivity helps establish a transparent understanding of the decision to include his location of employment as a collection site and demonstrate his intentionality in maintaining credibility and validity above all (Creswell & Creswell, 2018; Maxwell, 2013; Yin, 2016).

### **Definition of Terms**

Due to the particular educational category from which this study draws, a generalized definition of terms is appropriate. The following terms are used throughout the study, representing the researcher’s contextual subjectivity to the content. A universal, dictionary-based definition for each term was not given. Instead, each word is given meaning and description based on and within the context of the problem of practice, as previously discussed.

As a central theme throughout the study, the particular subset of *career and technical education (CTE)* differs from that of secondary education or higher education settings. Career and Technical Education (CTE) is defined through the latest Carl D. Perkins V Act on page 4, Section 3, number 5, as:

The term “career and technical education” means organized educational activities that offer a sequence of courses that provides individuals with rigorous academic content and relevant technical knowledge and skills needed to prepare for further education and careers in current or emerging professions, which may include high-skill, high-wage, or

in-demand industry sector or occupations. (Carl D. Perkins Career and Technical Education Improvement Act of 2006, 2019, p. 4)

While at times still referred to as Vo-Tech, the Oklahoma Vocational Education department officially made its name change in 2000 to the Oklahoma Department of Career and Technology Education, otherwise known as the CareerTech or CTE system (*Approved bill gives new name to vo-tech system "Career tech" more fitting, some say*, 2000). The Oklahoma CTE system operates under a stand-alone department, The Oklahoma Department of Career and Technology Education, separate from the Oklahoma State Department of Education and Oklahoma State Regents for Higher Education (Oklahoma Department of Career and Technology Education, n.d.).

The dedicated focus and research areas within the CTE setting refer to *programs of study*. A CTE program of study could also be known as the course, class, or program a student takes. Examples include auto service, computer programming, cosmetology, diesel mechanics, nursing, welding, etc. They can be delivered in various options to high school and postsecondary students, primarily based on the desired competencies and required guidelines by involved entities. A program of study aims to educate and train students for future employment skills, occupational competencies, and career pathways. A more technical explanation can be found directly from the Carl D. Perkins V grant on page 12, section 41.

The particular area of focus outside the educational setting targeted through the research is that of *nontraditional fields* or careers. These represent where exactly the targeted population for study will enter into the workforce, as well as helping to define nontraditional students. As defined through the latest Carl D. Perkins V Act on page 9, section 3, number 33:

The term “non-traditional fields” means occupations or fields of work, such as careers in computer science, technology, and other current and emerging high skill occupations, for which individuals from one gender comprise less than 25 percent of the individuals employed in each such occupation or field of work. (Carl D. Perkins Career and Technical Education Improvement Act of 2006, 2019, p. 9)

These nontraditional fields can be any profession where one gender represents more than 75% of the population. A good example would be nursing, traditionally considered a female-dominated profession. A male entering the nursing profession would be joining a nontraditional setting where he represents a minority of the workforce.

The student who chooses to participate in the training of a nontraditional field of study, occupation, or workforce is categorized as a *nontraditional student*. A nontraditional student in CTE engages in a program of study that leads to a nontraditional field, as defined by the Carl D. Perkins Act. The nontraditional student’s gender represents 25% or less of the population within the program of study and, ultimately, career pathway. The term is interconnected with the definition of a nontraditional field described by the Carl D. Perkins Act. A nontraditional student is training to become a nontraditional employee (Fluhr et al., 2017). An example would be a female student enrolling in a welding program, where she would be classified as a nontraditional student because the welding profession comprises more than 75% males.

A distinction between explicit and implicit bias is vital to discuss this particular topic and problem of practice. As defined by Reihl et al. (2015), “Explicit attitudes and biases are within an individual’s conscious awareness. An individual can reflect on and monitor these easily” (p. 249). The keyword in the definition is conscious awareness of behavior or thoughts. In comparison, as defined by Reihl et al. (2015), “Implicit attitudes and biases are the automatically

activated unconscious counterparts of self-reported explicit attitudes. In some situations, implicit attitudes predict behaviors better than explicitly held beliefs” (p. 249). The keyword in the definition is unconscious awareness of behavior or thoughts.

### **Assumptions**

With a study that attempts to understand the various barriers for nontraditional women students to participate in trade and industry programs of study, an assumption has to be that the students have a genuine interest in the program and career path. The study will draw insights directly from current and former students. If the data collected is of sound use to the problem of practice, it must come from a student who genuinely has intrinsic motivation for attending. A student forced to take the program or who chose it for other reasons, such as outside influences, may not replicate the desired population for study.

Another critical assumption is that all the trade and industry programs used in this study can be completed successfully by either gender. There are no unrealistic physical conditions or requirements that would limit participation by gender. The programs work in shops with tools and variable climate conditions. Still, due to strict safety protocols, students are not subject to physically harmful situations or are required to lift unreasonable amounts of weight. These strict safety protocols and protections continue with the students as they transition into the workplace. They are all governed by OSHA or the Occupational Safety and Health Administration Division of the United States Department of Labor (U.S. Department of Labor, n.d.).

### **Limitations**

As is the case for any research project, potential challenges could serve as limitations on the validity of the findings. In an attempt to operate with transparency, resulting in high levels of trustworthiness, the researcher has chosen to discuss these potential areas of concern. Sampling

sizes are at the forefront of the researcher's concerns to maintain validity. While saturation will be the goal for the sample size protocol, there is always a possibility that the sample does not adequately represent the population. Also, given that the targeted population for the study is nontraditional students, by its very definition, a limited group, there is concern that the researcher will not reach enough participants to accurately represent the group as a whole (Creswell, 2015; Creswell & Creswell, 2018).

The most significant area of concern going into the data collection protocols is the potential for researcher influence, bias, or positionality on the results. Maintaining a high level of researcher reflexivity is essential. Creswell & Creswell (2018) reinforce the importance of such and how to achieve reflexivity by stating, "inquirers reflect about how their role in the study and their personal background, culture and experiences hold potential for shaping their interpretations, such as the themes they advance and the meaning they ascribe to the data" (p. 182). The researcher is male studying female participants of traditionally male-dominated programs of study. While my intentions are pure in identifying barriers to help serve an underrepresented population, I am also aware that my presence may skew results (Creswell & Creswell, 2018; Holmes, 2020; Xerri, 2018). To maintain awareness and prevent this, during the interviews, I will observe the behaviors of the interviewees, watch for signs of uncomfortableness, and journal my perceptions following each exercise.

### **Delimitations**

The delimitations of the study represent the boundaries by which the researcher intentionally chooses to operate. Even within the GIQM, where flexibility abounds, a framing of the study must be done to progress through the project appropriately. The first is the decision only to interview female student participants from the particular population. While the insight

offered by accompanying male students about the struggles witnessed firsthand by female students may be beneficial, an intentional exclusion was made. Another delimitation to the study is the decision not to research nontraditional women students in other areas, such as secondary or higher education-based STEM programs. While there is much literature and research on this particular population, the researcher felt it unnecessary to gather firsthand data. Along the same lines, a decision was made not to interview fellow male nontraditional students in cosmetology or health careers programs.

Another delimitation area was the decision to exclude interviews with counselors from the secondary high school level. As it would provide excellent insight into the recruiting pipeline from the high schools into the technology centers and could very well warrant the need for an additional research project, the intention is to gather the data directly from the active participants within the programs represented within the problem of practice. Because of this, the decision to only interview CTE counselors was made.

## **Summary**

Of all the topics to study, why a feminist theory subject such as nontraditional students in traditionally male-dominated fields? For the researcher, the answer originates from within the home. Beyond the essential human elements of survival, we want to provide our children with an environment where they are free to grow, pursue their passions and find their talents. While the core of my hopes and dreams for my children is their happiness, I believe there is a direct connection between finding one's purpose and joy. As a father of two daughters and general advocate for the underserved, I am pursuing this research project to understand better the underrepresentation of female students in traditional trade and industry programs. Through a better understanding obtained directly from the participants, a more concerted effort can be made

to improve my localized problem of practice, providing more opportunities for individuals to find their paths, purpose, and a small piece of the American dream.

## CHAPTER 2: REVIEW OF LITERATURE

In a letter on March 31, 1776, Abigail Adams, wife of future president John Adams, wrote to her husband to “remember the ladies and be more generous and favorable to them than your ancestors” (Letter, 1776). While gender equality in the form of social and legal realms was far from gaining traction in 1776, this example of correspondence points to a sense of social consciousness that was present even in the earliest formations of our country. Fast forward to today, and as unrecognizable as the modern world would be for Abigail Adams, she would see a society where much progress has been made in women’s rights but also where obstacles still exist.

This is not a study to investigate and explore the historical intricacies of the women’s rights movement. Instead, meticulously investigating my problem of practice requires an effort to look back and ask questions about why and how we got to a place in modern society where professional opportunities are defined by gender. The findings, utilizing various resources and research, reveal a cultural foundation balancing the reality of who we are with whom we want to be as a society. These societal formations took years to form through trial and tribulation and are still evolving. While complicated and cumbersome, gender inequality issues take many forms in our society today.

To help navigate and better understand the problem of practice, a further dive into the conceptual framework of the matter will help form a better picture of where we currently exist as a society to help move forward. Intentionally reviewing pertinent literature and working through the theoretical framework on and around the topic will assist in the endeavor. The first step is to examine feminist theory, primarily the study’s guiding worldview. Then, we will review the literature on the following gender inequality categories: societal constructs of roles, societal



troubles, political participation, health care, workplace, and educational systems. To finish the review, an effort will be made to bring in the historic legal and political constructs around gender inequality, specifically regarding educational and workplace rights. Through this methodical approach, the researcher hopes to reveal insight into the modern-day gender equality environment, particularly within the educational and workplace settings, and to frame the research moving forward theoretically (Maxwell, 2013).

### **Feminist Theory**

The idea of gender-defined roles and resulting inequalities is not a new topic. Years of research and work have been done to attempt to capture the anthropological and sociological explanations of why and how, as humans, we divide and define ourselves. Any study of gender inequality must include, at its foundational core, a dive into feminist theory. One of the earliest works to bring these conversations forward was Betty Friedan's 1963 *The Feminine Mystique*. Her work was foundational in the feminist movement and groundbreaking in its era as it began questioning the societal constructs of women in society, specifically in the role of homemaker and in the workforce. During its early years in print, the piece found itself controversial due to the direct pushback it gave to the expectations of what women should be. Famously she asked, "is this all?" (Friedan, 1963, p. 1) as a challenge to the societal expectations of women at the time and the psychological impacts of living a life out of one's control. Even though we are coming up on its nearly 60<sup>th</sup> anniversary, Friedan's work and resulting feminist theory leadership still hold weight in the modern conversation. Her questions about women's existence and societal roles are still referenced for motivation for those looking to step outside the traditional gender stereotypes.

As we attempt to define and understand the factors tied to forming the societal constructs connected to gender inequality, a general definition must be explored to guide what feminist theory means. To bring together the vast complexities of the feminist theory into a simplified workable definition, the writer will turn to one of the most well-acclaimed advocates, proponents, and writers of women's rights, bell hooks. While she has written numerous works across various social movements, maybe her most well-known are the conversations around feminist theory. She examines, often from firsthand experience, the societal constructs that have placed women at a disadvantage while also discussing how to elevate women to equal status in all definitions (hooks, 1981; hooks, 1984, hooks, 2014). In the 2<sup>nd</sup> edition (2014) of her book *Feminism is for Everyone: Passionate Politics*, hooks offers the following generalized definition, "feminism is a movement to end sexism, sexist exploitation, and oppression" (p. 1).

Another general definition and goal of feminist theory advocates come from the founding Statement of Purpose for the National Organization for Women (NOW). Adopted October 29, 1966, and written by previously mentioned feminist theory icon Betty Friedan, the statement captures the true essence of the movement, equality for all. "The purpose of NOW is to take action to bring women into full participation in the mainstream of American society now, exercising all the privileges and responsibilities thereof in truly equal partnership with men" (National Organization, para 2). While these two general definitions may not wholly capture the feminist movement, they are an excellent foundation to build and establish a working framework of gender rights.

### **Societal Constructs of Roles – Stereotypes**

At the core of gender inequality issues lies the culturally ingrained, socially constructed expectations of gender roles. These social expectations of gender roles are often referred to as

stereotypes. One of the soundest definitions of gender stereotyping comes from the Gender Equality Law Center (n.d.) in New York, “Gender stereotyping is defined as an overgeneralization of characteristics, differences and attributes of a certain group based on their gender” (Gender Equality Law Center, n.d., para 1). While the definition is simple, the lasting effect of socially accepted, culturally ingrained stereotypes has left its mark. Appearing innocently enough within our society, the unseen lasting repercussions of pre-assigning gender roles stretch many different directions. The consequences can be limited opportunities both professionally and personally and detrimental psychological effects for the individual as well as underutilization of an entire portion of the population (Burkley et al., 2016; Chang & Milkman, 2020; Criado-Perez, 2019; Friedan, 1963; Hentschel et al., 2019; hooks, 2014).

To further illustrate this point, when you picture a diesel mechanic, whom do you see? When you envision a kindergarten teacher, whom do you see? These two simple questions reaffirm how gender stereotypes have become more expected than culturally accepted. One profession expects physical strength, mechanical aptitude, and an impervious acceptance of working outside in the elements. The other requires a loving, patient, nurturing character tasked with watching over and helping our children grow. With these professions come particular relational and personality trait expectations, reaffirming our preconceived notions of what each gender should or should not be doing (Busch, 2018; Hentschel et al., 2019). A counter-argument could be that we only associate particular genders with roles or professions based on or because of our personal historical experiences and encounters. While that might be true, a deeper dive might reveal the question of why all of our personal experiences with particular professions have been overwhelmingly predominated by the stereotypical gender (Burkley et al., 2016).

Progress has to some degree, been made in Women's rights since Abigail Adams wrote to her husband in 1776, but changing culturally ingrained gender norms is very difficult. This concern stretches beyond the United States and its history, including global cultures. The problem is so significant that the United Nations Human Rights Office of the High Commissioner has enacted two international human rights treaties barring wrongful gender stereotyping. The first was signed into force on September 3, 1981, at the Convention on the Elimination of All Forms of Discrimination against Women (United Nations, 1979). The second was enacted on May 3, 2008, at the Convention on the Rights of Persons with Disabilities (United Nations, 2006).

The focus on gender stereotypes extends beyond that of female consideration only. Male stereotypes present potential issues when studying gender constructs within social expectations (Heyder & Kessels, 2015; Watson et al., 2019). To grasp how these stereotypes influence behavior and social norms, you must consider both sides, male and female. The comparison and intermixing of stereotypes create a sort of glass box by which each gender is categorized. The metaphor of a glass box is intentionally used to illustrate how each individual can see where they stand and witness how others exist in their boxes. Within these boxes, individuals must consciously or subconsciously choose where they want to exist. While some are comfortable in their position and enjoy their box, when someone steps outside the defined gender box, they risk being ostracized or labeled an outcast. The risk of assigned gender stereotypes and roles hinders and restricts individuals from fully expressing their growth and identity in whatever definition one considers. According to Chang & Milkman (2020), "By working to overcome biases in decision-making that harm women's outcomes in the workplace, organizations can take full advantage of the offerings of the entire population and reap the benefits of increased gender

diversity” (p. 6). To truly make the most of the democratic capitalistic systems, we need our participants to be fully engaged, maximizing their potential (Chang & Milkman, 2020; Nunner-Winkler et al., 2007; Wu & Cheng, 2016).

### ***Housework***

One of the examples of stereotypes, in particular for women, is to be the homemaker. Social traditions as a homemaker point to the female housewife as being tied to the home, not in the workforce supporting her family. Therefore, her skills are associated with such tasks. For example, their responsibilities and status correlate with their ability to keep a clean house, shop, prepare meals, maintain social appearances, and help ease the working man’s burden. According to Cerrato & Cifre (2018), “the traditional gender role model prescribes that work domain and instrumentality are more important for men than for women, whereas the home domain and expressiveness is more important for women. The traditional gender role model has a biosocial and cultural origin” (p. 2). Of the gender inequalities that have historically existed but eroded as recent times have passed and society has evolved, this might be one of the best examples.

Since the controversial release and spurring of social conversation of Betty Friedan’s 1963 *The Feminine Mystique*, this idea of a woman’s place in the home has slowly faded. In fairness, some women stay at home, motivated by their intrinsic desire to be stay-at-home moms. The homemaker stereotype extends beyond that, representing an individualistic value tied to staying within the confines of the home, responsible for keeping her nest in order while the man is away. From a personal perspective, the homemaker stereotype is not prevalent in the writer’s societal surroundings or personal experience as a married man with a working wife who is the mother of three. As a society, it is interesting to see how far this particular social gender role

expectation has shifted in as little as two generations (Cerrato & Cifre, 2018; Friedan, 1963; Milkie et al., 2021; Smith & Johnson, 2020).

### *Childcare*

Besides the long-held societal construct of women staying at home and tending to the housework while the husband earns money, one of the most ingrained and powerful gender stereotypes is that of being the primary childcare contributor, mainly taking care of the children (Friedan, 1963; hook, 1984). While potentially being the oldest gender stereotype, it is also one of the most interesting to define and challenge because of the cultural context in which it lands. In our modern society, the choice is sometimes made for the woman to stay home due to her simply not making enough money to offset the high cost of childcare. This reinforces the stereotype while potentially limiting the professional growth of the woman. The stereotype reinforces that the woman has to sacrifice her individuality for the good of the family and children, not the working male (Baird & Burge, 2018; Friedan, 1963; Haque, 2021; Kaźmierczak & Karasiewicz, 2019).

I have seen firsthand the struggle of working women, my mother and my wife, trying to find a balance between maintaining family and professional life. They are the biological givers of life, carrying the baby for nine months and providing sustenance to keep the young child alive for the first few years. Yet, the woman was an individual with all her hopes and dreams before she bore the child and will again one day have goals for her life when they are grown (Friedan, 1963; Haque, 2021). My wife has shared this balance conundrum as having to choose your guiltiness. On the one hand, she expresses having “mom guilt” when she has to drop the kids off at daycare while she decides to go to work to pursue her professional goals. On the other hand,

she knows she would not be her best if she chose to stay home and be the full-time childcare giver, so she is left with the guilt of not living her best life.

### **Societal Troubles**

As the new age feminist movement has helped overcome long-held legal restrictions and evolved societal constructs of a woman's place in society, areas of struggle and concern still exist. Women have seen their roles and opportunity in and out of the house progress since the release of Betty Friedan's 1963 *The Feminine Mystique*, but with the new evolutions of society have come new concerns. Such areas of modern-day societal gender inequalities exist in objectification, discrimination, socioeconomics, and violence. To better understand my problem of practice, the lack of representation of women in nontraditional trade and industry professions, the writer believes these may be the core influencing agents preventing higher levels of participation (Becker et al., 2014; Coulter et al., 2021; Kearny & Levine, 2014; Rumrill et al., 2018).

### ***Objectification***

One of the central concerns of the feminist theory movement has been the objectification of women in society. The basis of the objectification theory is that a person is objectified and valued as a thing rather than an individual (Fredrickson & Roberts, 1997). This permeates deeper into considering a woman not necessarily a person but rather an object for one's personal use and utility. Further, the worth of an individual is based more on physical features and traits than on internal characteristics of the whole individual, such as morals, values, intelligence, education, compassion, interests, etc. Specifically relating to women and sexual objectification, Baldissarri et al. (2019) says, "these types of interpersonal feedback can be internalized by women and

trigger their self-objectification, that is their enhanced attention on their bodies and physical appearance rather than on their full person” (p. 2).

The psychological effects can be detrimental as it causes women to internalize their worth based on impossible socially instilled physical standards. Due to our digital social media age, this concern has increased in complexity and severity. Anyone with a phone can instantly change their physical appearance with photo apps and technology, furthering the impossible physical standards for women to measure themselves against (Vandenbosch & Eggermont, 2012). The negative societal effect or gender inequality issue is that women are pressed by modern society to value themselves more on their physical appearance and expectations to uphold certain sexualized behaviors rather than to value themselves as a whole individual with all their characteristics considered (Baldissarri et al., 2019; Gervais et al., 2016; Poon et al., 2020).

### ***Discrimination***

Sexual discrimination has been a longstanding social issue with some ugly history to remind us if we choose to look back. While its legal remnants are gone, thanks to the passage of the 19<sup>th</sup> amendment in 1920 granting voting rights for women, the 1963 Equal Pay Act banning wage discrimination based on sex, the 1964 Civil Rights Act prohibiting employment discrimination based on sex, and the 1972 enactment of Title IX protecting educational program availability for both sexes, there are still times within our society that women face discrimination or unequal treatment (National Women’s History, n.d.). Examples of gender discrimination occur not only in the workplace but in political participation, health care, and educational avenues (Criado – Perez, 2019; Kucharska, 2018; Parker & Funk, 2017).



Sexual discrimination represents the devaluing and intentional diminishing of worth based on an individual's gender rather than any measurable skillsets or capacity. The results can psychologically damage the individual's self-worth as their life's trajectory can appear out of control. It places glass ceilings on individuals hindering their opportunities. It has the detrimental effect of limiting the potential participation of all portions of society, restraining the expansion or growth of economies and localized cultures. This particular issue relates to previously mentioned social constructs around stereotypes. Unfortunately, society sometimes has long-standing prejudices based on fear or misunderstandings that carry across generations. Change is often slow in evolving ideologies (Fink, 2018; Matthies et al., 2022; Kucharska, 2018; SteelFisher, 2019).

### ***Socioeconomic***

The gender inequality issue of socio-economic status (SES) present in the United States stretches beyond the measure of earned income to cover a variety of financial and social security considerations. While it includes earned income, it also considers poverty status, savings, and retirement planning. Additionally, it consists of the accessibility of resources for physical and mental health both preemptively and in a time of need. The SES also includes the availability of reliable housing and living conditions for the individual and family (American Psychological, n.d.; Criado – Perez, 2019; O'Neil et al., 2020; National Center for Educational, 2012).

On most of the SES measurables, women lag behind their male counterparts. This phenomenon extends around the world, not specific to the United States. For example, in 2020, females made 83% of what males did based on real median earnings for those who worked full-time, year-round positions (U.S. Census, 2021). This is a significant number regardless of other variables. Still, when considering the overall SES status of women in single-parent homes, it is

alarming to consider the effects beyond the woman to the children. As a side note, much has been studied and written on the adverse academic effects of SES status on children making these statistics compound in severity. Taking a deeper look at the workings of these circumstances of women as single parents and heads of household, there are additional, sometimes unreported burdens. Severely impacting the SES of these single parents is the reality of an overly disproportionate childcare obligation with accompanying unequal financial responsibility. Often these women shoulder the vast majority of parenting responsibility with little financial support. As the literature has suggested, quantifying these exact burdens into an accurate SES is difficult. Therefore, a clear and precise statistical depiction of SES inequality is not always possible (American Psychological, n.d.; Bleiweis et al., 2020; Criado – Perez, 2019; Vogel, 2020).

### ***Violence***

Of the gender inequalities, the most heartbreaking is the disproportionate amount of violence through various forms of sexual harassment, abuse, assault, rape, and murder that women fall victim to compared to men. The statistics between the genders can be astounding when considering this particular area of focus. The World Health Organization (WHO) (2021) stated, “estimates published by WHO indicate that globally about 1 in 3 (30%) of women worldwide have been subjected to either physical and/or sexual intimate partner violence or non-partner sexual violence in their lifetime” (World Health, para 2). Consider this, nearly one in three women across the planet has been subject to either physical or sexual violence. Diving further, the question arises of just how much has occurred but has never been reported (Criado-Perez, 2019; Wortham, 2014).

One of the more alarming patterns to examine within this awful subcategory is intimate partner violence. Roughly defined as physical or sexual abuse from an intimate partner,

potentially a spouse, companion, or any relationship where close trust has been formed, this represents an intentional physical and psychological control of a known individual. The WHO (2021) reports, “Worldwide, almost one third (27%) of women aged 15-49 years who have been in a relationship report that they have been subjected to some form of physical and/or sexual violence by their intimate partner” (World Health, Para 3). Horrific as any physical or sexual violence can be, this particular category provides an additional burden of continued victimization due to the reality that the victim is often unable to leave the situation due to financial control or lack of cultural support to move onward (Criado – Perez, 2019; Wortham, 2014). Additionally, the cycle often reciprocates itself culturally over time due to family members, specifically children, who bear witness (Holmes, 2013; Lohman et al., 2014).

### **Political Participation**

The issue of political participation and representation is another area of gender inequality. Central to a democratic government is the political involvement of citizens. Elected officials represent their constituents, representing their citizens’ localized issues and concerns. This interconnectedness of bringing elected officials from around the country to represent their constituents while working together as a whole makes the system work. While women’s voter turnout is to be celebrated, the actual representation in government as elected officials is low (Pew Research, 2020).

To examine the issue, we must examine the voter turnout statistics. According to the Pew Research Center (2020), women’s turnout for presidential election voting has been greater than men’s since the 1984 election. The 2016 presidential election saw a turnout of 63% women compared to 59% men (Pew Research, 2020). A deeper dive into voting turnout reveals that the presidential elections are not an anomaly for women. Instead, they once again outpace men in

voting turnout. In response to the 2018 midterm elections, where women had higher voter turnout than men, the Pew Research Center (2019) stated, “as has been the case in the last five midterm elections dating back to 1998, women turned out to vote at slightly higher rates than men” (Pew Research, para 2).

The political process of electing officials, constituents’ representation, creating and changing laws, and enacting laws into policy, is an essential progression that affects our everyday lives. If those laws affect us all, wouldn’t we want a proper representation of the constituents? With women making up 50% of our population, an inequality metric would be political participation by elected officials. According to the Center for American Women and Politics, in 2022 there were 147 women elected and serving out of 535 positions in the United States Congress. That equates to a 27.5% representation at the nation’s highest levels. Broken down further, there are 24 Senators and 123 House of Representatives members (Center for American, n.d.).

The inequality issue of political participation comes from the contradictory data and resulting questions. If you have more women turning out to vote than men, why is there only 27.5% female representation in Congress? Is it an issue of insufficient quality female candidates emerging to run for positions? Why would women not be interested? Are there innate leadership qualities that men naturally, on average, possess over women causing the voting to sway towards men? These questions the writer cannot answer. Instead, they demonstrate how complex the gender inequality issue is surrounding political participation.

## **Health Care**

One of the most perplexing gender inequality topics is in health care. Historically, the medical profession and similarly focused sciences were primarily dominated by males, at least

regarding medical doctors and scientists. Because of this, these behaviors and perspectives shaped the earliest literature, instruction, techniques, strategies, and discipline. Due to biological differences, there were some aspects of the female anatomy that male doctors could not relate to or understand. From this, a level of askew treatment would be developed and accepted. Explicitly or implicitly, the result would be, in theory, a second-rate medical treatment in certain physiological arenas (Criado-Perez, 2019; Duke Health, 2019; Kent et al., 2012).

From the diagnosis and treatment of various medical conditions to the research of trial medications, there appears to be a gender bias against females. One such example comes from a 2021 study on pain management. The study's results showed that when a female reports pain, her concerns are not taken as seriously as her male counterparts, even with comparable diagnoses. Further in the study, females have been prescribed more therapy-based treatments than medication for pain management strategies (Zhang et al., 2021).

Another example comes from the misdiagnosis and treatment of cardiology-related issues. The literature routinely places cardiology amongst the most severe medical departments for gender bias or improper representation (Criado-Perez, 2019; Kent et al., 2012). In 2019 a major research project was released in the Journal of the American College of Cardiology that looked at the discrepancy between male and female patient diagnosis and treatment for suspected acute coronary syndrome (Lee et al., 2019). The general idea of the study was that they reviewed over 48,000 total patients using traditional diagnosis, and then, pulling from that data, they incorporated a gender-specific medical protocol. Upon utilizing the gender-specific cardiology assessment protocol, detailed for both men and women individually, over five times more women than men were identified. What does this mean in the real world? The medical staff recognized over 1,400 additional female patients needing treatment by utilizing a female-tailored

protocol. That is equivalent to a 6% increase in total female patients out of the original 48,000 studied (Lee et al., 2019). This number is both exciting for the future of female cardiology treatments and sad when you consider how many individuals have not been diagnosed in the past. Explicit or implicit, the results are that medical treatment and care are not the same between the genders. (Criado-Perez, 2019; Duke Health, 2019; Kent et al., 2014)

## **Workplace**

The legal practice of gender discrimination in the workplace has been illegal for almost 60 years, dating back to the 1963 Equal Pay Act banning gender wage discrimination and the 1964 Civil Rights Act banning employment discrimination based on gender. With the introduction of Title IX in 1972, legal protections were granted for equal educational opportunities for both genders (National Women's History, n.d.). These pieces of legislation would open doors for women by providing new educational opportunities to further themselves and advance equality through action (Criado-Perez, 2019).

Some interesting data comes from the National Center for Education Statistics about higher education degree obtainment. Since 1982 women have earned more bachelor's degrees than men. Since 1987 women have earned more master's degrees than men, and since 2006, women have earned more doctorate degrees than men (National Center, 2021). Even with all the legal successes, educational accomplishments, and societal progress, there have still been significant issues rooted in gender bias. For this study, the three most prominent issues facing women's workplace inequality are unequal pay, unequal advancement opportunities, and sexual harassment incidents.

## **Pay Gap**

Unequal pay has been well studied and documented, with years of research showing this problem has legitimacy in the United States and globally. Often referred to as the gender pay gap, it represents the discrepancy between females being paid less than males for doing the same job (Bleiweis et al., 2020; Criado-Perez, 2019). In 2020 females made 83% of what males did based on real median earnings for those who worked full-time, year-round positions (U.S. Census, 2021). According to Bleiweis et al. (2020), “Not only do more women than men struggle to cover everyday expenses due to the gender wage gap, but the gap compounds over a lifetime, meaning women end up with fewer resources and savings than men” (p. 6). The long-term effects of the pay gap are not only the immediate shortfall of income but the long-term shorting of retirement, emergency savings, and cumulative wealth building across generations (Smith-Carrier et al., 2021).

## ***Advancement Bias***

Further, the gender inequality issues surrounding advancement opportunities set women back. The gender biases around leaders and their roles bring societal expectations for behaviors and experiences and often physical traits. This acceptance of traditional gender roles and stereotypes is potentially detrimental to the individual and the economy as it limits the capacity of half the population. This is not only an issue directly from the top down of a company as it also persists in the self-conceptualization of the women themselves, potentially not even attempting to advance even though their skill set and experiences might be the best for the position (Bleiweis et al., 2020; Corbett et al., 2012; Criado-Perez, 2019).

Another potential gender bias in advancement is preconceived long-term career concerns stemming from a woman starting a family. Intentional or not, the idea that a woman could be out

for months while pregnant and providing care for the newborn, plus primarily being the caregiver in the early years, could affect hiring and advancement opportunities (Allen et al., 2016). The reality is that even with all the laws and legal protections, bias still exists. People are human with their imperfections and prejudices, shaped by culturally ingrained indoctrination. The question of which prevails to a greater degree, explicit or implicit bias, is very difficult to answer, but the questions can lead to a deeper conversation about the workplace environment we create and support as a society (Bleiweis et al., 2020; Corbett et al., 2012; Criado-Perez, 2019).

### ***Sexual Harassment***

The issue of gender inequalities around sexual harassment was also discussed earlier. Despite the legal ramifications, it is a significant factor in workplace discrimination against women. Creating an environment of uncertain physical or mental safety is extremely psychologically taxing. Per the U.S. Equal Employment Opportunity Commission (2022), “sexual harassment or sexual assault in the workplace is a form of sex discrimination that violates Title VII” (U.S. Equal Employment, 2022, para 1).

Unfortunately, often the issues are either largely unreported or not fully vetted by company leadership, creating a workplace culture of tolerance towards such behavior and acceptance. Because of these issues, statistics vary on reported workplace sexual harassment complaints. In a 2018 study by the Pew Research Center, they found that 59% of women have fallen victim to sexual harassment-defined behaviors while in the workplace (Blazina, 2021). The victims must either learn how to exist in the space and avoid the assailants or quit, risking financial uncertainty. Beyond the physical and mental damage of such an environment, both of these options are highly detrimental to the career advancement of women trying to navigate



modern workplace life (Criado-Perez, 2019; Maktoobian & Khorasgani, 2014; Spiliopoulou & Witcomb, 2022).

### ***Occupational Segregation by Gender***

Another type of gender bias relates to a previous section discussing stereotypes. Society is guilty of establishing stereotypes or expectations of what men and women should do for an occupation. Women are often seen as caregivers and nurturing, leading to the medical field, particularly nursing or teaching roles. These stereotypes differ from the expectations for men to work in hands-on technical roles as technicians or engineers. These examples reinforce occupational segregation based on the stereotypical roles we play in society. The contradiction to this accepted norm is the reality that individuals each have different skill sets and interests that drive us. According to Chang and Milkman (2020), “As the business world becomes increasingly competitive, organizations cannot afford to miss out on the contributions of talented women” (p. 6). To fully maximize the workforce, we must foster the growth of the entire individual, ultimately providing more well-rounded perspectives and insight on how to solve the problems of today and tomorrow (Allen et al., 2016; Busch, 2018; Criado-Perez, 2019).

### **Educational Gender Inequalities**

Considering all the elements listed above, why wouldn't we assume the educational systems themselves have levels of gender bias? They do, at least to some degree, on various levels. The schools often represent local cultures and social norms; therefore, stereotypes and prejudice come into the building with the employees and students. Some examples of biases are the socialization of behaviors, classroom participation, and selection of courses (American Association, n.d.; Criado-Perez, 2019.)

From the onset of their educational journeys, students are treated differently based on elements out of their control, including race, gender, SES, and physical features. This is generally known as gender socialization and consists of a continued set of behaviors, expectations, and norms accompanying a child through their journey. While this has the potential of being positive and supportive through familiarizing the student with the educational team, it also runs the risk of labeling students with negative connotations or stigmas they can never escape. Further, it can also restrict or limit the individualistic growth of a student who may not conform to the expected group norms. For example, a female student who cuts her hair short and dresses like a male student may not be treated as kindly or feministic as other female students. This early-stage labeling or tracking can have long-term effects on students as they may feel like they do not fit in or are not normal (Alanzi et al., 2020; American Association, n.d.; Criado-Perez, 2019; Dipti, 2022).

Within this gender tracking process, the socialization of behaviors is formed, instilled, and reinforced through repetition until it is believed. These gender biases reinforce norms, including how the students are addressed, behavioral expectations, classroom participation, course selection, career planning, and even how the students dress. Think of early developmental children whose teachers are more accepting of aggressive, rowdy behavior from boys while celebrating the sweet, quiet little girls. These expectations carry over into the classroom in how they interact with their curriculum, where it is stated that boys are better at math and science while girls are better at other content. This trend continues from elementary into high school in how students are advised to take specific courses for potential post-secondary opportunities. While it may appear innocent enough, these decisions do have repercussions. The children do not forget these trends, and with them, they carry these biases into society, eventually reciprocating

their learned experiences back into the system as a whole (Alanzi et al., 2020; American Association, n.d.; Criado-Perez, 2019; Dipti, 2022; Ganea & Bodrug-Lungu, 2018)

### ***Influence Agents – Counselors***

Counselors have a tremendous impact on students and their career pathways. Dominated mainly by females, they represent potential gender inequalities through misdirected guidance due to their own biases and limited availability. Specifically, high school counselors are often overworked with too many students and have too few resources to devote time to getting to know the students individually. The result is resorting to a generic one size fits all approach of counseling and advisement. This is not an attack on counselors or an attempt to broad stroke the profession negatively, far from it, as they are essential to the education process. Instead, this is an opportunity to highlight their significance and impact on students' lives (Benigno, 2017; Davis, 2022; Kim et al., 2020; Malik, 2005).

A counselor's involvement in the secondary or career and technical education (CTE) setting presents a potential, influential point of contact for every student. Specific to CTE, they directly affect program enrollment (Comstock et al., 2003). What happens when those who serve as trusted guidance do not have the capacity or experience to assist a student with nontraditional needs? No matter the intent, the counselor can misguide or overtly influence due to the intimate nature of the one-on-one interactions and faculty position. The result, either way, is the student failing to know their options, ultimately withdrawing opportunity (Hamilton et al., 2015; Malik, 2005; Pellom, 2021).

### ***Influence Agents – Teachers***

The influential effect of teachers on students cannot be understated. Typically, within schools, they serve as the closest line of daily contact with students. These relationships between

teachers and students directly influence the child's overall development. Stretching beyond the educational benefits, the mentoring and modeling of behaviors and socialization of norms by teachers help young students grow into capable young adults. A positive and supportive cast around a child increases the likelihood of them reaching their potential. While most educators who enter the profession do so with some sense of positively helping young people grow and develop, sometimes the efforts can be misguided or fall short (Davis, 2022; Dweck, 2010; Tatar & Da'as, 2012).

Within the potential systematic educational influences, the literature points out the impact of the teacher on the student's self-conceptualization and, ultimately, career pathway. This is a significant potential area of gender bias asserting itself as entire professional lives can be shifted. This is often not through harmful language or official persuasion but through the subtle influences formed by trusting relationships and successful socialization. Focusing more on CTE teachers, as Reese (2002) points out, a teacher can be very intimidating to students as they cautiously review and consider both the program and career path. The influence of gender bias shows itself from the earliest interactions beginning with what the student sees when they walk into the classroom, especially if the majority of current students and teachers look different than they do (Davis, 2022; Eberly et al., 2007; Toglia, 2013).

Students can be swayed intentionally or not in these delicate moments of first impressions. Further exploration of internalized gender bias comes when teachers bring fixed mindsets of who can succeed in their classrooms based on their own experiences and dispositions (Dweck, 2010). This, unfortunately, can also lead to a perpetual repetition of gender inequalities within particular programs as the bias affirms itself when students are unsuccessful. The question arises whether students are unsuccessful because they lack the capacity, due in part to their

gender, race, aptitude, etc., or because the culture of the environment is so overly hostile and harsh that the student never had a chance to be successful. The sad truth is that by not being open and supportive, the teacher limits opportunities for the student and their program (Davis, 2022; Tatar & Da'as, 2012; Tatar & Emmanuel, 2001; Toglia, 2013).

### ***CTE System – Educational Bias***

If the literature reveals anything, the issue of gender inequalities within the educational and workplace environments, specifically the CTE system, is complex, with several layered contributing factors. Societal constructs and culturally ingrained belief systems are the anthropological foundations of the gender inequality discrepancy in the workforce and, ultimately, CTE program enrollment. The stereotypes that paint specific careers as male-dominated or female-dominated are at the core of this foundation. Weisgram et al. (2010) speak directly to this by stating, “Researchers in developmental psychology have long posited that gender cognitions (e.g., gender stereotypes) play a role in shaping occupational interests. In contrast, researchers in vocational psychology have focused on occupational values as shaping occupational goals” (p.793). These occupational values and resulting goals form the basis of generational family culture (Morris, 2011).

The literature further suggests that these values reinforce the culturally accepted traditional family structure and ingrained stereotypes, including parental roles (Fluhr et al., 2017). These stereotypes and social roles are powerful forces deeply at work within our subconscious. As a result of the traditional self-imagery paradigms born from these evolutions, career paths and culturally common interests have become unknowingly indoctrinated, reinforced by the historic customs born from within the family structure (Evans & Diekman, 2009; Hogue et al., 2010; Morris, 2011; Schuette et al., 2012; Struthers & Strachan, 2019).

## **Legal and Political Constructs**

We have examined the literature and research to identify a connection between social conditions and gender inequalities. These findings have revealed various social constructs, exposing both explicit and implicit biases. As Dipti (2022) states, “gender discrimination and gender inequality are not something that women or men were born with, and it is not natural phenomena; it is a social discrimination that is controllable though improving awareness and having a neutral socialization” (p. 10). Allowing this to set the stage for a historical analysis of the legal constructs is very appropriate, as laws and their implications are only made possible by man. However, as will be demonstrated, it is with the evolution of culture and society that these laws, too, can change.

### ***Founding Fathers***

History remembers our founding fathers as brave patriots who unitedly stood against the unfair governmental rule of the British, carving out the earliest remnants of our country. Their tales have been told in history books for ages, representing the core tenants of what it is to be American. Amongst the many traits, they stood for freedom, the rights of the individual, and the general acceptance of differences between people (American Battlefield, 2021). As imperfect and unequal as those characteristics may be to the whole of society as compared to today, they represented an enlightened movement for the equality of man in their time. Of course, with any historical review of legal documentation of the period, it becomes apparent that the distinction that all men are created equal with equal rights is not accurate compared to modern society.

Beginning with the Declaration of Independence (1776), the founding fathers coined the term “all men are created equal” (para 2). While there is discussion as to what was meant by the founding writers of all men, possibly a collective whole of all the American colonies or the

American ideology of freedom from tyranny, the reality is that women, children, and those of color did not have equal rights or representation, such as voting and property ownership rights (De Witte, 2020; Huhn, 2012; Pruitt, 2020; U.S. National Archives, 1776; White, 2014). What is known, though, is that the statement stood to embody a united front against the British, demanding fair, equal treatment. With time it would also evolve to represent the written ethos of the civil rights movement to mean all citizens are of equal value and privilege (De Witte, 2020; White, 2014). This interpretation would take years to evolve and, in some ways, still falls short concerning the rights of specific sexual orientations or personal identification (American Civil Liberties Union, n.d.).

After the Declaration of Independence, the U.S. Constitution was written to formally unite the colonies and establish a structure to help hold them together. It was based on the principles of separation of power, popular sovereignty, limited government, and individual rights. As a result of the deliberations and negotiations during the writing of the Constitution, one of the most enlightened documents would come out of this period, the Bill of Rights. The Bill of Rights would be the first 10 Amendments added to the United States federal government that granted whole protections and privileges to citizens. They were written as legal defenses for citizens against the government. For example, freedom of speech and association in the 1<sup>st</sup> Amendment, right to privacy in the 4<sup>th</sup>, 5<sup>th</sup>, and 9<sup>th</sup> Amendments, and most relative to gender discrimination, due process that would evolve into equal protection of the law granted by the 5<sup>th</sup> Amendment (Cornell Law, n.d.). They would represent a mixing of political ideologies ensuring limited government with individual rights. While sovereignty was given to the states to define certain rights and services of its citizens, the Bill of Rights was meant to provide uniform

protection of the most significant ideological values of the country as a whole (American Civil Liberties Union, n.d.; Huhn, 2012; U.S. National Archives, 1789; White, 2014).

Referencing documents over 230 years old might appear counterintuitive to a research problem involving modern-day gender inequality. Still, the reality is that today's foundational civil rights platforms are grounded in the evolved legal interpretations of these earliest documents, including the Declaration of Independence, the U.S. Constitution, and the Bill of Rights. While questions have arisen about to what degree did the founding fathers intentionally utilize linguistic semantics in the language of the documents providing vagueness, open to interpretation and evolution, the reality is that nearly all of their writings have been foundational case law in the country. In particular, civil rights movements have exercised within this interpretative zone, arguing against discriminatory legal statutes and regulations using the founding fathers' language as a defense (Burger, 1979; White, 2014). These early foundational pieces of the government have become known as living documents due to their capability to evolve if and when society deems them necessary (Huhn, 2012; Library, n.d.). Much of the remaining legal constructs to be discussed in this review will draw from the earliest foundational documentation of the country.

### ***Seneca Falls Convention (1848)***

According to the National Constitution Center (2022), "The Seneca Falls Convention is regarded by many as the birthplace of American feminism. Heralded as the first women's rights convention in the United States, it was held at the Wesleyan Chapel in Seneca Falls, New York, on July 19 and 20, 1848" (para. 1). While not a legal construct by definition, the convention symbolized a uniting of women, as well as men in attendance, to demand equal treatment and privileges, in particular voting rights. A collective document, the Declaration of Sentiments, was



constructed and ratified by the convention, which outlined the specific demands for rights (National Park Service, 1848). The event's significance beyond the symbolic gathering for equality and unified collection of ratified demands was that it predated the civil war and the reconstruction amendments. It would inspire the writing of amendments following the civil war, providing a preview of civil rights expression (History Channel, 2022a; National Constitution Center, 2022; Osborn & ERIC, 2001).

The legal basis and rationale for demanding equal treatment pulled verbiage from the Declaration of Independence. In the Declaration of Sentiments (National Park Service, 1848), it was stated, "We hold these truths to be self-evident; that all men and women are created equal; that they are endowed by their Creator with certain inalienable rights; that among these are life, liberty, and the pursuit of happiness" (National Park Service, 1848, para. 2). Adding "and women" to the Declaration of Sentiment was the only change to the Declaration of Independence text utilized for the convention. Counting as only a small addition to the text, it would represent an entirely different paradigm of equal rights for the country. While nothing in official legal precedent or law would become established as a result of the convention, it would be the inspiration for feminist movements in the future. An important side note to the convention was the hypocritical lack of representation of women from lower social classes and women of color (History Channel, 2022a; National Constitution Center, 2022; National Park Service, 1848; Osborn & ERIC, 2001).

### ***14<sup>th</sup> Amendment (1868)***

The 14<sup>th</sup> amendment, ratified in 1868 as a reconstruction amendment, gave citizenship to all persons born in the United States, including formerly enslaved people, as well as granted equal protection of the laws as obligated by not only the federal government, the 5<sup>th</sup> Amendment

granted, but as legal protection required by the states. The significance of this due process protection at the state level ensured that citizens' rights to due process could no longer be at the whim of states as granted by the 10<sup>th</sup> Amendment, which delegated powers not specified in the constitution to the states themselves (U.S. National Archives, 1789). While formerly enslaved people, Black Americans, were granted citizenship by the 14<sup>th</sup> Amendment and voting rights by the 15<sup>th</sup> Amendment, women of all colors and citizenship statuses were left without the right to vote and equal protection (Cornell Law, n.d.; Gagnon, 2020; History Channel, 2022b; National Constitution Center, n.d.; U.S. Congress, n.d.).

According to Gagnon (2020), "Contrary to the belief of eighty percent of Americans, the U.S. Constitution does not prohibit discrimination on the basis of sex" (p. 1013). While specific laws are in place to grant rights, privileges, and protections, such as women's right to vote, limiting educational institution gender discrimination, and pregnancy discrimination, there is no single federally charged amendment prohibiting widescale discrimination based on gender (Gagnon, 2020). So, where do most civil rights movements draw their legal case law to argue for equal treatment? The 5<sup>th</sup> and 14<sup>th</sup> amendments are often a centerpiece of argued defense for equal rights based on the idea of equal protection of the laws based on the written language declaring due process protections at both the federal and state levels. It has been argued that because the 5<sup>th</sup> and 14<sup>th</sup> Amendments grant equal protection of the law, with no discernable differences in the value of gender based on rights of property, then inherent gender discrepancy or discriminatory practices valuing one gender above the other cannot be equal (Cornell Law, n.d.; Gagnon, 2020; History Channel, 2022b; National Constitution Center, n.d.).

### ***19<sup>th</sup> Amendment (1920)***

The 19<sup>th</sup> amendment, ratified in 1920, would mark the symbolic capstone to a storied battle for women's suffrage or voting rights (U.S. National Archives, 2022a). Much has been made of the verbiage of the 19<sup>th</sup> Amendment, that the text is limited and does not actually say female or women's right to vote, instead that the government cannot deny voting based on sex. As not to dive into a linguistic semantics argument, the opposing view against the language was given to illustrate how divisive this topic was and is still today. Some feminist activists express how the writers could have extended the amendment to include language banning discrimination on all accounts based on sex but that they intentionally chose to exclude it, demonstrating further the gender divide in the country. For the sake of this research project, we will consider the 19<sup>th</sup> amendment for what it was, the first significant attempt to provide equality between the sexes (Gagnon, 2020; Thomas, 2021; Miller, 2015).

Having its beginnings in the early 19<sup>th</sup> century, the women's suffrage movement would officially make its mark at the Seneca Falls Convention in 1848. There, attendees, comprised of both males and females, discussed and drew up a Declaration of Sentiment that provided a list of demands and rationale for why women's rights, especially voting rights, should be extended. Unfortunately, even with strong support, no official legal action was taken beyond the convention (National Constitution Center, 2022; National Park Service, 1848). The results of the convention may not have instantly brought about change, but it did light a suffrage fire that would continue to burn until passage.

According to the U.S. National Archives (2021), "The National Woman Suffrage Association (NWSA) was formed by Elizabeth Cady Stanton and Susan B. Anthony in May of 1869 – they opposed the 15<sup>th</sup> amendment because it excluded women" (para. 3). Under the

leadership of Stanton and Anthony, the NWSA would take a direct approach to get their message out, protesting and appealing to Congress to be heard on the suffrage movement. They were very public in their disapproval of political figures and a government that unfairly would not listen to their calls for action. They were not the only suffrage movement organization at this time. A rival organization, the American Woman Suffrage Association (AWSA), was established in 1869 as well. The AWSA took a less aggressive approach than the NWSA. They publicly supported the 15<sup>th</sup> amendment and believed in trying to help solve the problem of suffrage locally, attempting to gain traction at the state level. Unfortunately, because the two organizations had rival philosophies about how best to enact change, not much traction was made individually (McCammon, 2001; McCammon, 2003; Miller, 2015; U.S. National Archives, 2021).

Not until they joined together would momentum swing in their favor. According to the U.S. National Archives (2021), “In 1890, the NWSA and AWSA merged into the National American Woman Suffrage Association (NAWSA). It became the largest woman suffrage organization in the country and led much of the struggle for the vote through 1920, when the 19<sup>th</sup> Amendment was ratified” (para. 5). By joining together, they combined the strengths of both philosophies, both federal action and pressure with localized rallying of support (McCammon, 2001; McCammon, 2003; Miller, 2015). By the end of the 1910s, political support was swirling enough to obtain a proposal and passage, giving women the right to vote. While women would receive this right, it would not mark complete gender equality, far from it. Gender inequalities would continue throughout the 20<sup>th</sup> century, but feminist theory activists would draw back to this period of the organized suffrage movement and use it to promote change (Miller, 2015; Thomas, 2021; U.S. National Archives, 2022a; U.S. National Archives, 2021).

### ***U.S. Department of Labor Women's Bureau (1920)***

Following the passage of the 19<sup>th</sup> Amendment, another milestone for women's rights was accomplished in the summer of 1920 with the establishment of the Women's Bureau through the U.S. Department of Labor. According to the U.S. Department of Labor (n.d.b), "The Women's Bureau is the only federal agency mandated to represent the needs of wage-earning women in the public policy process." (para. 1). The department was established following the rise of women in the workplace during WWI. Their primary responsibilities were ensuring that working conditions and opportunities were comparable to their male counterparts. While these were the early days of the gender equality movement, the importance of the Women's Bureau cannot be understated, as it represented a collective voice of force within the Department of Labor (Mastracci, 2004; McGuire, 2012; U.S Department of Labor, n.d.b; Women's Bureau, 1990).

As time went on, the department was influential in helping develop war-time workforce protocols and standards during WWII to ensure women were afforded the same rights as men. When images of Rosie the Riveter come to mind during the 1940s, the Women's Bureau was there helping to support the workforce. The success of women in the workforce during the 1940s helped to progress women's rights in the decade. However, unfortunately, as wartime ended, society in the United States regressed to some degree. The Women's Bureau is an essential legal construct and governmental department in and around my problem of practice, underrepresentation of women in traditional trade and industry programs. In reality, they have been proponents on the front lines battling discriminatory gender inequalities in the workplace for over 100 years (Mastracci, 2004; McGuire, 2012; U.S Department of Labor, n.d.b; Women's Bureau, 1990).

### ***Equal Rights Amendment (1923)***

Any legal review of women's rights and gender inequalities throughout the history of the United States must include the Equal Rights Amendment (ERA). The ERA was written by Alice Paul, a suffragist, a few years after the passage of the 19<sup>th</sup> amendment granting women's voting rights. The ERA represented an attempt to capitalize on the positive momentum of the suffrage movement and aimed to outlaw any form of discrimination based on sex at the federal level. According to the Alice Paul Institute (n.d.), the finalized proposed language that was passed through Congress but unable to gain ratification through the states reads as, "Equality of rights under the law shall not be denied or abridged by the United States or by any state on account of sex" (para. 2). The unique nature of the ERA is not what it did, as it has never become official, but what it could not do in its most basic elements, declare officially from the federal level that fundamental equality of rights could not be denied based on sex (Alice Paul Institute, n.d.; Gagnon, 2020; Gender Equality in the Constitution, 2019).

While the initial proposal was in 1923, it was not until 1972 that Congress approved the amendment in its proposed modern form. After an approved extension of the ratification period from 1979 to 1982 due to a lack of ratification from states, the amendments proposal timed out. Interestingly enough, even though the ratification period has passed, states as recently as 2020 have moved to ratify the amendment. However, as of this writing, it still is not a legal amendment to the constitution. Opponents of the ERA insisted the passage would create unintended consequences such as expanding abortion rights, causing women to be drafted into military service, reducing protections such as alimony, child support, and parental rights, as well as eliminating workplace labor protections (Alice Paul Institute, n.d.; Gagnon, 2020; Gender

Equality in the Constitution, 2019; Pros and Cons, 2022). These arguments were often repeated throughout the 20<sup>th</sup> century as gender equality issues arose.

### ***Equal Pay Act of 1963***

The Equal Pay Act of 1963 was a progressive workplace equality measure granting equal pay between the sexes for similar or identical jobs (U.S. Department of Labor, n.d.a). It was an amendment to an earlier workforce improvement measure called the Fair Labor Standards Act, written in 1938, which granted minimum wage, overtime rules and set forth child labor laws (U.S. Department of Labor, n.d.c). The Equal Pay Act would cover all types of compensation, including hourly and salaried wages, overtime pay, bonuses, and reimbursement benefits for business travel. One additional benefit the Act provided for the discriminated worker was the requirement of employers to raise all pay up to equal rather than down, typically benefiting female workers. This widely meant raises for the population. The intent of raising both parties to equal pay would help the transition as it would not cause any individual to lose income, potentially further harming workplace culture (Castro & Women's Bureau, 1998; U.S. Department of Labor, n.d.a).

An unintentional side effect would occur when employers had to make compensation raises equal between the sexes. No longer capable of hiring and retaining women for lesser wages, the process of workplace review would have to evolve, basing promotions and resulting wage increases on productivity and merit. Did this solve all gender workplace discrimination? No, but ultimately the act made discriminatory pay and benefit practices between genders unlawful and would provide legal grounds for gender workforce cases moving forward. The Equal Pay Act of 1963 would go down as one of the first significant and monumental steps in

addressing not only the gender inequality pay gap but workforce discrimination as a whole (Castro & Women’s Bureau, 1998; U.S. Department of Labor, n.d.a).

### ***Civil Rights Act of 1964***

One of the most influential pieces of civil rights legislation would be initially presented by President John F. Kennedy in the summer of 1963. Despite his assassination in the fall of 1963, his successor, President Lyndon Johnson, would help move the Civil Rights Act (CRA) forward to its eventual enactment more than a year later, in July of 1964. The Civil Rights Act of 1964 took monumental steps toward making discrimination illegal at the federal level. According to the U.S. National Archives (2022b), “The act outlawed segregation in businesses such as theaters, restaurants, and hotels. It banned discriminatory practices in employment and ended segregation in public places such as swimming pools, libraries, and public schools” (para. 4). The direct relevance to a study on gender inequalities is that the act also provided language that included making discrimination based on sex illegal. The lineage of modern-day civil rights or discriminatory legal cases can trace its legal precedent back to the CRA (U.S. National Archives, 2022b).

### ***Title IV***

Title IV of the Civil Rights Act of 1964 deals explicitly with educational discrimination. Upon enactment of the CRA, the Department of Justice would create a Civil Rights Division dedicated to law enforcement. Title IV would create a subdivision within the Civil Rights Division, the Educational Opportunities Section. According to the U.S. Department of Justice (2022), “The Civil Rights Division, Educational Opportunities Section enforces several federal civil rights laws which prohibit discrimination on the basis of race, color, national origin, language, sex, religion, and disability in schools and institutions of higher education” (para. 1).



The enacted laws would protect publicly funded K-12 schools, vocational education schools, and higher education institutions. Title IV would open educational institution doors previously shut to those of color or women. Societally speaking, it meant equal educational opportunities for all citizens where admission into advanced studies would be based on merit or aptitude. It would symbolize a new era of hope for the traditionally discriminated populations, as elevated levels of education are often associated with financial security. As time passed, the CRA would evolve, but the foundational groundwork for eliminating explicit bias within our educational institutions would be set (U.S. Department of Justice, 2022; U.S. National Archives, 2022b; U.S. National Archives, 2022c).

### ***Title VII***

Title VII of the Civil Rights Act of 1964 brought about several important outcomes. The first is that it not only reiterates how discrimination is unlawful but, as the U.S. Department of Justice (2021) states, “the Act also makes it unlawful to retaliate against a person because the person complained about discrimination, filed a charge of discrimination, or participated in an employment discrimination investigation or lawsuit” (para. 1). The second significant effect of Title VII according to U.S. National Archives (2022b) was, “the act created the Equal Employment Opportunity Commission (EEOC) to implement the law” (para. 6). The importance of the EEOC to gender equality in the workplace cannot be understated. It is what ensures gender inequality stays out of the workplace. It is the legal defense mechanism of the United States government that operates as enforcement of workplace injustices based on bias or prejudice. One of the interesting components of the resulting EEOC is that the organization, which also goes by the Employment Litigation Section within the Civil Rights division of the Department of Justice, investigates not only blatant discriminatory practices but also stands to protect against implicit or

subversive forms of unfair workplace inequalities (U.S. Equal Employment, n.d.; U.S. Department of Justice, 2021; U.S. National Archives, 2022b).

### ***National Organization for Women (NOW) (1966)***

The National Organization for Women (NOW) was created in 1966 and captured the growing feminist movement energy. In its inaugural implementation, famed feminist author and icon Betty Friedan would construct its Statement of Purpose that would not only represent its mission of the times but still holds today. She would write (1966), “the purpose of NOW is to take action to bring women into full participation in the mainstream of American society now, exercising all the privileges and responsibilities thereof in truly equal partnership with men” (National Organization, para 2). According to National Organization (n.d.a), “NOW is the largest feminist organization in the nation, with more than 500,000 contributing members. NOW has more than 500 local and campus affiliates in all 50 states and the District of Columbia” (para. 1). The organization is well equipped with qualified staff to legally and socially combat gender inequalities in various forms. They represent a relentless traditional feminist theory vigor that stands to elevate the status of women as equal in all regards (National Organization, 1966; National Organization, n.d.a; National Organization, n.d.b).

### ***The Education Amendments of 1972***

The Education Amendments of 1972 was a collection of 10 individual provisions addressing a range of educational issues of the era. They would have provisions dedicated to higher education and vocational education structural funding and the incorporation of federal-level agencies. It created a National Institute of Education; whose aim was to support educational research through grants rewarded to institutions and agencies. While the agency has since been absorbed into other arms of the government, it was an attempt to provide federal funding to help

develop education for all of the country. One of the more lasting provisions within the Education Amendments of 1972 would be Title IV, Indian Education, which aimed at providing federal assistance directly to Native American children attending public schools. Title IV intended to directly assist, through funding, research, and development, a population who traditionally had demonstrated struggles for various reasons by creating an Office of Indian Education and a National Advisory Council on Indian Education. While not the focus of this particular study, it should be noted that Title IV would represent a significant civil rights victory by directly tending to an underserved population (Congressional Quarterly, 1973; Federal Reserve, 1972; Nixon, 1972).

Other provisions, Title V specifically, were about additional funding to related programs, which translated to securing funding for various educational programs and agencies that did not fit into the traditional instructional categories. Title VII included the establishment of emergency school aid, allowing impoverished school districts more access to funding. Title X would entail a generalized institutional aid provision authorizing additional funding based on various criteria. One of the more interesting attached provisions was Title VIII which dealt with desegregation busing. The language of the provision was hotly debated. However, the general idea is that due to the exacting language of previous legislation requiring desegregation, school districts faced major financial strain in providing busing to meet the requirements. Title VIII was meant as a way for schools to relax their busing requirements, easing the financial burden of busing. The debate was around who and why could relax their desegregation busing and how funding would be attached. Much has been studied and written about desegregation practices and the resulting impacts today. Title VIII is at the center of this and demonstrates when good intentions interact

with realities to produce unintended consequences (Congressional Quarterly, 1973; Federal Reserve, 1972; Nixon, 1972).

The most influential provision of the Education Amendments was Title IX. If you work in a publicly funded educational institution, you have not only heard of Title IX but have most likely had professional development activities in and around the provision. It is so commonly ingrained in our modern-day system that it is still referred to as Title IX. A further dive will follow, but generically speaking, Title IX says that any educational institution or program receiving federal funds cannot discriminate on the basis of sex. If discrimination is found, federal funding as a whole can be terminated (Congressional Quarterly, 1973; Federal Reserve, 1972).

### ***Title IX (1972)***

In the most simplistic of terms, buried inconspicuously towards the end of the Educational Amendments of 1972 lies the first and most influential educational anti-gender legal discrimination protections in the history of our country. Fifty years later, its prominence and reputation are still going strong, providing opportunities through gender equality for both men and women. According to the U.S. Department of Education (2021), Title IX states, “No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance” (para. 2). The impact from Title IX would mean that all educational institutions or programs that receive federal financial funding must provide equal opportunity to both male and females. Equal opportunity means not only equal positions or spots due to a creation of a quota system but equal funding and facilities. If a men’s athletic program receives funding, Title IX says female programs must receive the same amount of funding to be equal and non-discriminatory. Title IX would symbolize the federal government’s hardline stance on equal

treatment and opportunity for both sexes (Powell, 2022; Stromquist, 2013; Toglia, 2013; U.S. Department of Education, 2021; Welfare et al., 2017).

While much of the publicity around Title IX goes to the impact on sports programs at the secondary and higher education levels, the reality is that the protections afforded by the provision extend to all educational avenues and levels that receive federal funding. According to the U.S. Department of Education (2021), the number of impacted institutions “include approximately 17,600 local school districts, over 5,000 postsecondary institutions, and charter schools, for-profit schools, libraries, and museums. Also included are vocational rehabilitation agencies and education agencies of 50 states, the District of Columbia, and territories of the United States” (para. 3). With these numbers in mind, the protections extend beyond the extracurricular platforms (Powell, 2022; Stromquist, 2013; Toglia, 2013).

The literature expresses the seriousness by which Title IX operates as a federally legislated mandate to eliminate gender-based discrimination through institutional policy and, equally as necessary, the individual rights and protections afforded to students (Stromquist, 2013; Welfare et al., 2017). For the sake of this research project, the influence and impact of Title IX will be on the institutional implementation of programs and facilities where vocational training occurs in specific Career and Technical Education (CTE) organizations. Toglia (2013) speaks to the impact of Title IX on CTE by stating, “Since athletic programs tend to be highly visible, many high schools, colleges, and universities seeking to comply with Title IX added programs such as women’s softball and track. However, in the not-so-visible CTE programs, very few changes have occurred” (p. 14). The changes, or lack thereof, Toglia speaks about are less about facilities equality or program accessibility and more about a lack of equal representation due in part to localized social stereotypes or implicit gender biases from those

attached to the programs of study. These elements are difficult to quantify into measurable compliance variables due to their implicit nature (Stromquist, 2013; Toglia, 2013; U.S. Department of Education, 2021; Wonacott, 2002).

The lack of visibility and under-representation of genders within particular fields of study does relate to Title IX, though based on the components of recruitment, counseling, and admissions. Are the CTE training centers in violation of Title IX? Not necessarily from the facilities and availability standpoint, at least from the researcher's experiences. However, the idea of degrees of compliance might extend into the intentionality of the recruitment and admission cycle through equitable targeted actions. An additional element to consider when examining Title IX compliance with nontraditional recruitment is the Carl Perkins Grant's implementation, which directly targets this population. Because of the continuous implementation and annual evaluation of the Carl Perkins Grant and, in particular, the nontraditional student core performance indicator, it is assumed that CTE organizations, when in compliance, are not in violation of Title IX regarding the big-picture education of these students (Council, 2019; Toglia, 2013; U.S. Department of Education, 2021; Wonacott, 2002).

### ***Frontiero v. Richardson 1973***

The *Frontiero v. Richardson* (1973) case originated when a female in the Air Force tried to establish dependent benefits for her husband. Subject to the military policy of the time, her husband was ineligible to receive benefits as they did not cover the spouses of female enlistees unless they were the sole provider for the family. She sued, claiming sexual discrimination, eventually winning the case. The Supreme Court would ultimately hear the case, granting equal dependency rights for spouses. According to Oyez (n.d.), "The Court held that the statute in question clearly commanded, "dissimilar treatment for men and women who are similarly

situated,” violating the Due Process Clause and the equal protection requirements that clause implied” (para. 3). The implications of the ruling and rationale for including it in this study is that it pulled together the Due Process Clause and equal protections granted by the Civil Rights Act to set a legal precedent in workforce discrimination that explicitly outlawed separate treatment for the sexes. Moving forward, it would significantly represent established gender discrimination case law for all legal gender workplace inequality struggles (Oyez, n.d.).

### ***The Pregnancy Discrimination Act of 1978***

The Pregnancy Discrimination Act (PDA) of 1978 was an amendment to Title IV of the Civil Rights Act of 1964. It would extend workplace gender biology equality protections to females. For example, according to the U.S. Department of Labor (n.d.d), it “prohibits discrimination on the basis of pregnancy, childbirth, or related medical conditions” (para. 1). Beyond the protections granted verbatim, the PDA would help usher a societal movement of new female workers into the workplace as it provided protections for both expecting mothers and those already with children at home. The Act’s language helped identify pregnancy and its surrounding implications as medical-related, not a sex-specific experience or social condition. Because of this distinction, it brought with it more legal bite to guard against discriminatory work behavior, including firing, loss of wages, retaliatory practices to induce quitting, etc. (McCammon & Brockman, 2019; Mukhopadhyay, 2012; U.S. Department of Labor, n.d.d; U.S. Equal Employment, 1978).

The Pregnancy Discrimination Act of 1978 is foundational to the gender workplace equality movement. It served to help level the playing field between the sexes by taking immediate consideration of one of the differences between the sexes, childbirth. It acknowledged that females have the biological function and responsibility of childbirth, and because of these

facts, it should not be held against them, especially in their professional lives. The implications of the Act and resulting social movements have enabled females to venture into any work environment, regardless of setting or circumstance (McCammon & Brockman, 2019; Mukhopadhyay, 2012; U.S. Department of Labor, n.d.d; U.S. Equal Employment, 1978).

### ***U.S. Military Combat Service (2016)***

One of the more recent breakthroughs for gender equality was the 2015 announcement by Defense Secretary Ash Carter. In his announcement, he declared that beginning in January 2016, all military branches will open all positions and roles to women. According to Pellerin (2015), “for the first time in U.S. military history, as long as they qualify and meet specific standards, the secretary said women will be able to contribute to the Defense Department mission with no barriers at all in their way” (para. 2). The historic nature of this announcement is extremely relevant to the study of underrepresentation of women in traditional male-dominated trade and industry programs of study. There may be a no bigger arena in the United States culture where masculine behavior and gender expectations occur than the military, especially in consideration of active duty roles defending the front lines of freedom. Because of the recent nature of the announcement, we do not have substantial data or research on the social effects. The researcher believes there will be a positive correlation between opening historic military roles up to women and women entering male-dominated career pathways, mainly based on a social breakdown of stereotyping and cultural acceptance of nontraditional roles where the character of the individual outshines definable characteristics (Parrish, 2016; Pellerin, 2015).

### **Carl D. Perkins Vocational Education Act of 1984 (Perkins V)**

The Carl D. Perkins Vocational Education Act would take place in 1984, replacing the Vocational Educational Act of 1963. At the core of its responsibilities was to help develop and



grow vocational education to, in turn, help build the economy by providing a quality workforce. The central function was not to develop curriculum or federally mandate instructional practices but to provide specialized grant programs to help training facilities purchase and maintain equipment that keeps instruction relevant and innovative. Amongst the fundamental philosophies of both vocational training of the past and cutting-edge technical programs of today is the idea that instruction and curriculum have to maintain relevance to the local economies they serve. This interconnected structure of localized control at the state level of instructional needs with the financial power of the federal government granting funds has made the relationship successful. While much has changed since its inception, the heart of the Carl Perkins Act remains intact through federally funding localized technical programs of study that keep our economy growing (Joseph et al., 2019; U.S. Congress, 1984).

To explain the structure, the Division of Academic and Technical Education (DATE) is the federal arm that helps deliver the grant programs under the Carl D. Perkins Career and Technical Education Act. The Division is tucked away within the U.S. Department of Education's Office of Career, Technical, and Adult Education. While the names are long and seemingly hidden within layers of bureaucracy, the federal delivery agent (DATE) of the Carl D. Perkins Act serves mainly as an approval, monitoring, and accountability mechanism for funding. With the latest renewal of the Carl Perkins Act, Perkins V, it does appear, though, that they are trying to get more involved in the administration and implementation of particular programs of study, especially in areas of the country where technical education is not delivered at a high level (Joseph et al., 2019; U.S. Congress, 1984; U.S. Department of Education, 2016).

The latest rendition of Carl Perkins is known as Perkins V. According to the Perkins Collaborative Resource Network (n.d.b), "the Strengthening Career and Technical Education for

the 21<sup>st</sup> Century Act (Perkins V) was signed into law by President Trump on July 31, 2018” (para. 1). The renewal received bipartisan support with congress committing nearly \$1.3 billion annually for CTE through the extensive funding model of grants (Perkins Collaborative, n.d.b). Perkins V replaced Carl D. Perkins Career and Technical Education act of 2006, referred to as Perkins IV. As is the case for each renewal of Perkins, the latest has a few new updates. In particular, the main focus is on trying to grow the whole student through a variety of experiences, including employability skills, exposing them to innovative programs aimed at the workplace and skills of tomorrow as well as workplace learning experiences making their education highly relevant and immediately transferable (Advance CTE, n.d.; All4Ed, n.d.; Joseph et al., 2019; U.S. Department of Education, 2016).

The additional updates to Perkins V give states more autonomy in how funds are not necessarily distributed but to which programs qualify and to what degree their participation warrants funding. The latest Perkins Act has continued its evolution, requesting more innovation, participation, and collaborations between educational and business partners on the local and state levels. Also, with new requirements comes new definitions for Perkins V. For example, a program concentrator is now defined differently than Perkins IV. The reasoning behind the few definition changes is its ability to increase accountability through clearly defining terms for data collection processing. Perkins V has intentionally moved to higher accountability for grant approval or renewal. The federally funded department works to ensure the efficient, appropriate use of funds to maximize their investment (Advance CTE, n.d.; All4Ed, n.d.; Council, 2019; Joseph et al., 2019; U.S. Department of Education, 2016).

The Carl Perkins Act has long stood as the federal guiding light of how CTE can be utilized to develop the economy and directly impact special populations. One of the continuous

intentional areas of focus for Carl Perkins funding, in particular Perkins IV and Perkins V, is with special populations. The special population group includes those with disabilities, economically disadvantaged, nontraditional fields, single parents, homeless, unemployed, foster care, children with active duty military parents, or any other barrier to educational achievement (California Department, 2022). Toglia (2013) goes on to mention the following about the significance of the federal Carl Perkins Act – “the wording in Perkins IV may encourage progress toward gender equity since it requires states to meet specific targets regarding enrollment and completion of nontraditional training and, if not met, they may lose federal funding” (p. 15). While the political landscape and societal views have evolved, so has the Perkins Act. Central to its existence is the federally mandated dollars tied to CTE training, with a specific earmark given to nontraditional students and pathways (All4Ed, n.d.; Joseph et al., 2019; Wyoming, 2011).

#### ***Core Indicator of Performance 4 (Non-Traditional Program Enrollment)***

When federal funds are received through Perkins funding, a requirement is to report annually on progress. The required reported elements are called Indicators of Performance. Perkins V has 11 specific Indicators of Performance attached to secondary students and three for postsecondary students. As an administrator within the CTE system whose district receives Perkins funding, we are held accountable and measured against these Core Indicators of Performance. Central to the researcher’s problem of practice, an underrepresentation of females in traditional male-dominated trade and industry programs of study is a direct connection to the Carl Perkins Grant. Core Indicator 4S1 of Perkins V, *Non-Traditional Program Concentration*, addresses the enrollment data of nontraditional students in programs of study (Indicators, n.d.a). The importance of the particular non-traditional core indicator is that it financially incentivizes

and rewards out-of-the-box recruiting, admissions, and instruction of a population in need. If a district is financially restricted, it may not be able to venture out to try and attract new groups of students or make necessary evolutions to programs to help train more of the population as a whole, instead settling for the status quo of doing what we have always done. Therefore, the problem of gender inequality within the traditional CTE setting is not only a societal and local economic concern, but for school leaders, we must be aware of the implications and potential opportunities it can present as it relates to funding (Council, 2019; Joseph et al., 2019).

### **Synthetic Review and Summary**

According to Bellitto (2015), “the increased influence of international human rights law means the United States can no longer ignore gender equality at home while preaching human rights abroad” (p. 125). The review of legislative and political constructs has shown a gradual increase in gender equality, particularly within education and the workplace, but from a larger perspective, how well are we currently doing? While there are no longer legislative barriers preventing gender equality, social constructs linger, still ingrained within the fabric of our culture, restricting the full maximization of the population. Through stereotypes, discrimination, and implicit biases, women must navigate a hypocritical space devoid of true acceptance of self, equalitarian existence, and, potentially worse, a pressurized expectation to embrace socially created roles.

Beyond the social and political implications, as a CTE administrator, this is not a localized educational problem but rather widespread across the country through our similar institutions, as demonstrated by the continual renewal and implementation of Carl Perkins Grant funding tied explicitly to the non-traditional student core performance indicator. If laws are no longer to blame for how we marginalize and repress our collective special populations as well as

half of our society, then who claims fault? More importantly and to the point, how can we socially evolve? Considering the vast literature library and historical legal precedents previously discussed, in the following chapter, the researcher will propose qualitative protocols and procedures to address these questions in hopes of identifying equalitarian enrollment strategies within the nontraditional trade and industry CTE setting for female students.

## **CHAPTER 3: METHODS**

The purpose of this general inductive qualitative study was to gain a deeper understanding and appreciation of the phenomena surrounding nontraditional students within traditional CTE trade and industry programs of study to discover practical, real-world applicable, and equitable actions that can be taken to provide equal opportunities for all. With this guiding the way, the mode of inquiry permitted me to obtain data from various perspectives, all directly in and around the phenomenon, in the hope of achieving a deeper understanding of the problem of practice. Qualitative data were obtained through semi-structured interviews with CTE faculty and staff and nontraditional students and observational field notes from interviews. Through the intentional review, coding, thematic analysis, and organization of the data, the sequenced efforts shed light revealing insight into the phenomena of the study (Creswell & Creswell, 2018; Yin, 2016).

### **Research Method and Design Appropriateness**

Research is the formalized continuous gathering, examination, and evolution of the understanding of the world that serves as the lifeblood of humanity's progress. It is the opportunity to reveal and advance our knowledge and conceptualization of all fields in their stand-alone independence and as an interconnected collective. The varying degrees and types of research are as vast as the number of individuals seeking to understand or develop theories around phenomena, behavior, knowledge, or natural processes. Stretching from studying natural sciences to applied sciences to the formal sciences, the processes and procedures are attuned to the individual needs of the researcher and project. This generalized concept of research extends beyond the sciences to all other fields or realms seeking to understand their discipline (Creswell, 2015; Creswell & Creswell, 2018; Goodrich, 2021; Monette et al., 2013).

### ***Applied Social Science Research***

According to Monette et al. (2013), “Social research is the systematic examination (or reexamination) of empirical data, collected by someone firsthand, concerning the social or psychological forces operating in a situation” (p. 3). A social science research orientation was implemented within my project, a traditional social justice and feminist theory topic. Because I sought to understand the phenomenon of nontraditional female students in traditional trade and industry CTE programs, collecting data directly from and within the participants was necessary. This active approach within the setting allowed the social constructs and native paradigms to speak for themselves, positing myself as the data collection instrument. As a nonnative of the environment, the benefit of this approach was in revealing insight and perspective beyond my capacity (Creswell & Creswell, 2018; Maxwell, 2013; Yin, 2016).

To best explain why I chose applied research vs. a basic research approach, looking at the two working definitions is essential. As Monette et al. (2013) say of basic research, “its purpose is to advance knowledge about human behavior with little concern for any immediate, practical benefits” (p. 4). While this approach has its necessary place within the research community, it did not fit within my immediate philosophical paradigms in that I was concerned with recognizing a localized problem and, through the research process, identifying practical working actions to help equitably address the situation and through time create equalitarian access for all. Monette et al. (2013) define applied research as “research designed with a practical outcome in mind and with the assumption that some group, or society as a whole, will gain specific benefits from it” (p. 4). These definitions provide literature-based support for my study's practicality and implementation of the applied research philosophy (Association for Supervision, 2019; Monette et al., 2013; Stanwick et al., 2012).

Combining the components, I embraced an applied social science research orientation. As referenced through the provided quotes and citations, the orientation aligned well with a study examining social constructs through a feminist theory worldview within a CTE setting. Yin (2016) reinforces the utility of applied social science research philosophies with the qualitative design when he states, “qualitative research explicitly embraces the contextual conditions-that is, the social, institutional, cultural, and environmental conditions- within which people’s lives take place” (p. 9). My desire to capture insight directly from the participants to obtain practical, real-world solutions to the problem established the philosophical foundations of an applied social science study (Maxwell, 2013; Monette et al., 2013; Stanwick et al., 2012).

### ***General Inductive Qualitative Model (GIQM) as Applied Social Science Research***

According to Maxwell (2013), “I see most of the more obvious aspects of qualitative research – its inductive, open-ended approach, its reliance on textual or visual rather than numerical data, and its primary goal of particular understanding rather than generalization across persons and settings” (p. viii). Further giving value to my choice of methodologies, Yin (2016) states, “the events and ideas emerging from qualitative research can represent the meanings given to real-world events by the people who live them, not the values, preconceptions, or meanings held by researchers” (p. 9). These two general conceptualizations of the values within qualitative methodology provided a foundational reference point to what I hoped to find through the journey, the capturing of insights directly from the participants, representing the social constructs and native paradigms of the settings, where ultimately real-world resolutions could be identified of the problem being studied.

The mode of inquiry I utilized within the qualitative methods was a general inductive qualitative model (GIQM). I intentionally chose this design versus other variants, such as



grounded theory, case study, etc., because of the inductive style and resulting flexibility it affords to shift and change directions if the research and resulting data dictate (Liu, 2016). Maxwell (2013) defends these freedoms and the autonomy of the researcher when he states, “less structured approaches, in contrast, allow you to focus on the particular phenomena being studied, which may differ between individuals or settings and require individually tailored methods. Less structured methods trade generalizability and comparability for internal validity and contextual understanding” (p. 88). Because of my pragmatic methodological worldview, the GIQM allowed the most authentic voice of the participants to speak, be heard, and shape the direction of the study.

This desire to have the participants’ native paradigms lead and influence the study also relates to why the GIQM is highly suited to an applied social science research orientation. An applied social orientation requires active participation within the phenomenon being studied, which is situated in a social setting where people are involved. The GIQM is philosophically built to embrace and coexist within the ambiguous social environments of the applied social science research orientation, acknowledging that when people are involved, we cannot have complete control over behavior, procedures, processes, or actions. Things will inevitably change, evolve or cease to exist within these settings. Because of this, you need a design, GIQM, that will roll with these circumstances. A goal of the applied research orientation is not just to discover insightful theories but to put them to use in the relevant practical sense of the environment. The GIQM design allows for a high degree of possibilities or outcomes due to the dynamic nature of the research, where the voices of the participants are from which the most significant degree of data is obtained (Maxwell, 2013; Yin, 2016).

Another explanation of the direct correlation between why the orientation and GIQM design are appropriate and highly suited to one another relates to the philosophies of what and how knowledge exists. While I have undertaken a fairly in-depth review of the literature to attempt to capture an understanding of the social constructs in and around the phenomenon, the reality is that a complete understanding cannot be accomplished by studying theory alone. Practical experience and data collection from within the environment must be undertaken to understand and gain knowledge of the phenomenon. This particular empirical epistemological paradigm provides that one best obtains knowledge or truth from firsthand experiences and objective realities (Kosso, 1991; Maxwell, 2013; Toren & de Pina-Cabral, 2009; Yin, 2016). While most qualitative methodologies allow for various interactions with the participants, the GIQM provides open access to follow its independently developed protocols, adapting as the native environment leads.

Furthermore, an honest appraisal of my familiarity and relatability with the setting must be considered. As a male researcher, I represented a true nonnative within the research setting, studying female participants within traditionally male-dominated CTE programs of study. While interviewer influence and bias should be noted as a potential concern, the intent of mentioning this nonnative existence is to highlight how difficult it would be to understand the localized phenomenon without the direct influence, input, and environmental exposure the qualitative method allows. Studying theory alone would not yield sufficient results to understand the localized problem. According to Maxwell (2013), “an awareness of alternative sources of concepts and theories about the phenomena you are studying – including sources other than the literature – is an important counterweight to the ideological hegemony of existing theory and research” (p. 52). Only by having a flexible qualitative approach that allowed and promoted

tangent data retrieval, if so led, could you genuinely interact with the data and potentially gain an accurate understanding of the phenomenon, yielding practical outcomes (Maxwell, 2013; Yin, 2016).

The applied social science research orientation and GIQM design mesh freely with one another, providing the potential for a genuinely valid representation of data on the phenomenon. While big-picture generalization findings would be excellent, maybe even the ultimate goal, my philosophical worldviews bring the focus of the study back to the localized problem and the potential for localized opportunities for improvement. The GIQM and an applied social science research orientation allow me to capture firsthand insight at the source, adjust or realign specific methods as necessary throughout the process, and discover practical outcomes where a localized improvement effort can be undertaken (Maxwell, 2013; Yin, 2016).

### ***General Inductive Qualitative Method (GIQM) – Accepted within the Field***

As researchers, we need to strive for proper protocol through our methods to ensure validity within our results. Having proposed a GIQM design, I sought out literature providing insight into the method to ensure that it is academically accepted and received as a valid methodology. Diving directly into the question of how the GIQM has been accepted and utilized in the field, the literature provides numerous examples of published works both implementing and supporting the utility of the design. Accomplished methodological writer and professor Robert Yin fully expressed this sentiment in his 2016 book, *Qualitative Research from Start to Finish*, by stating, “strong, if not exemplary, studies can be conducted under the general label “qualitative research” or “field-based” study, without resorting to any of the variants. This kind of generalized qualitative research appears with regularity in the top academic journals and university presses” (p. 66). As one of the more respected writers within the social science

research arena, his endorsement gives credence to the acceptance of the design in the academic and professional setting. Again, referencing his 2016 book, Yin dedicates several pages (p. 66 – 67) and citations in defense of the validity of the design. He goes as far as to say, “adopting any of the specialized types is hardly an imperative, as you need not adopt any of the specialized types” (Yin, 2016, p. 66). His support stems from the idea that when qualitative research is conducted within the social sciences, dealing with people and their complexities, often lock-step procedures and the design of more traditional approaches could potentially cause a researcher to miss essential data and resulting meaning on the phenomenon simply because the plan shifted or changed (Yin, 2016).

Liu (2016) also took time to validate the trustworthiness of the design and provided several examples and references to document the accepted method. As an example of her speaking on the movement of acceptance of the design, Liu (2016) stated, “it has become a growing trend in qualitative scholarship” (p. 129). Another acclaimed writer of qualitative methodology, Joseph Maxwell, is a major proponent of general inductive methods. In his 2013 book *Qualitative Research Design: An Interactive Approach*, Maxwell mentions an inductive approach to qualitative methods throughout the text, supporting the design and what it can bring to one’s research. In the text, Maxwell (2013) mentions, “to design a qualitative study, you can’t just develop (or borrow) a logical strategy in advance and then implement it faithfully. To a substantial extent, you need to construct and reconstruct your research design” (p. 3). With his work to implement the general inductive philosophies into his writings, he has furthered the acceptability of the design, giving credibility to its potential for valid research.

According to Caelli et al. (2003), “basic or generic approaches to qualitative research have become quite common... We see no reason to believe that this trend toward generic studies

will be reversed; rather, there are several indications that this is a growing trend” (p. 2). In the 2003 piece, Caelli et al. go as far as to say, “in the field of education, generic qualitative studies are among the most common forms of qualitative research” (p.3). While this is a strong statement to represent such a broad social science field as education, the point is that the article gives credence to the specific application of GIQM as accepted within my field of study. Furthermore, I identified an excellent published dissertation that undertook a similar research topic, educator attitudes in and around serving nontraditional students within CTE programs, that utilized a general qualitative approach. In her dissertation, Anne Morris (2011) referred to her methods as simply qualitative in nature rather than attaching the GIQM label or any other term. Her thoroughness in explaining specific individualized procedures and a rationale for each decision provided a level of trustworthiness as a reader to believe her methods were sound and the resulting data was valid. According to Morris (2011), “in terms of qualitative research, flexibility and variability in contrast to the observance of a definitive or standardize research methodology demonstrates good design” (p. 85). I intentionally provided various references from authors from different backgrounds to demonstrate that the GIQM is an accepted design in the field.

## **Procedures**

While the GIQM exists as an organically free-flowing philosophy of qualitative methods, free from rigid protocols, there must be a generalized plan to begin or guide the research process. As Maxwell (2013) states, “it is worth keeping in mind that you can lay out a tentative plan for some aspects of your study in considerable detail, but leave open the possibility of substantially revising this if necessary” (p. 89). Along with the study’s overarching purpose and main research questions acting as guiding themes, Maxwell’s words served as the philosophical basis and

foundation of my planning and method protocols. From within this inspiration, the completed procedures will be explained (Maxwell, 2013; Yin, 2016).

Before any research could begin, the University of Oklahoma's Institutional Review Board (IRB) had to grant official review and approval of the study. Their role is to ensure that research is conducted in a manner that adheres to local and federal regulations and, more importantly, protects research participants from undue harm. My study was approved in March of 2023, and I would begin one-on-one interviews and observational field notes in April of the same year (See APPENDIX D). All research would be conducted and completed within the granted and approved guidelines as set forth by the IRB. A review of my completed research by the IRB found that I was in good standing and compliance. I was granted access, approval, and recommendations to conduct research within each technology center district by their respected superintendents. All communication was done through email, which included all relevant and necessary informative documentation. All of the superintendents were very supportive and interested in my study.

A vital component of the IRB process is developing and approving specified protocols for all participants. As was stated before, the IRB ensures that all participants are protected and not subjected to undue psychological or physical harm. As a part of my approval by the IRB, two specific protocols were developed and established for use, one for faculty and staff and the other for nontraditional students. These tailored interview protocols consist of predetermined open-ended questions in and around the phenomenon (See APPENDIX B & C). For note, given the flexible nature of the GIQM, if the participant's responses led to tangent questions off of the protocol during the interviews, I was methodologically permitted to pursue them as long as they

did not violate any IRB guidelines. As discussed in Chapter 4, these tangents or extensions of the protocol on several occasions allowed for richer data obtainment.

The anticipated and proposed procedures of the study were carried out as planned. This included conducting face-to-face, one-on-one conversational semi-scripted interviews with the faculty and staff before doing the same with the nontraditional students. All interviews were conducted in a quiet setting, such as an office or conference room, away from their classrooms and shops. The rationale behind interviewing the faculty and staff first was to be exposed to insight or information about their district that would allow for better student interviews. The CTE faculty and staff participant category comprised currently working counselors, a non-traditional career advisor, a business and industry coordinator, and an instructor. One successful requirement of the study would be that a CTE counselor would be interviewed from each district that worked directly with the nontraditional students. These counselors were each involved to some degree in the enrollment, admission, and recruiting process of the relevant desired programs of study. All faculty and staff participants had unique, specialized experiences with the phenomenon of nontraditional students.

I subsequently interviewed two adult nontraditional students from each district with the insight I learned from these first rounds with faculty and staff. All of the students were selected by the counselors for my interviews. I gave little instruction to the counselors on who to choose other than requesting that they pull from different programs, tell them a little about my study, and see if they are interested. If the students were interested, the counselor would give them a Consent to Participate in Research form to review, discussed in a later section, and let them know when I would be on campus (See APPENDIX F). Like the faculty and staff, each student was interviewed in a one-on-one, conversational, semi-scripted, quiet setting with a tailored

protocol. All students were confirmed over 18 by the counselors beforehand to ensure protocol adherence.

To better represent the nontraditional student population, intentionality was given to pulling students from as many diverse programs of study within the trade and industry cluster as possible. With the bit of guidance I gave the counselors on who to select, I was able to get a diverse program representation. The six programs represented include Auto Service, Auto Collision, Construction Trades, Diesel Technology, Precision Machining, and Welding. A secondary benefit of pulling from various programs was to review the data and compare the results across multiple programs to see if specific programs provide different outcomes or experiences.

One of the more important yet underappreciated data collection strategies was the observational field notes taken before, during, and after the student interviews. Intentionality was given to capturing the elements of nonverbal behavior and any interactions before or after the interview. While small in a time frame, these interactions offer insight into the student's comfort with me and openness about the topic, centered on their existence within their journey. Maxwell (2013) speaks directly to these observations by stating, "you should always include whatever informal data-gathering strategies are feasible, including hanging out, casual conversations, and incidental observations. This is particularly important in an interview study, where such information can provide important contextual information" (p. 88). I tried to capture these moments of off-interview communication to help better understand the student's perspective and to spot any potential biases or areas of concern toward the validity of data retrieval that could influence the findings. Several examples are noted in the later breakdown of data in Chapter 4 of this study.



## Research Questions

The study's central research question was *why do we have such an underrepresentation of women in our CTE trade and industry programs?* Along with the study's procedures, both interview protocols were intentionally designed to approach this question from multiple angles, allowing me to examine the phenomena from various perspectives. Secondary questions were established to help further the breadth and width of potential findings in and around the phenomena, resulting in better research. The three additional secondary research questions were:

- What barriers exist for women entering traditionally male-dominated trade and industry programs?
- Where did the interest, inspiration, or idea of pursuing a nontraditional path originate for women who enter their programs of study?
- What can be done to increase the equitable enrollment figures?

With these questions and intentional procedures

Ultimately, having central and secondary research questions helped guide and shape the study. They provided intentionality and focus in the design of the procedures and specific protocols. These questions, coupled with the flexible nature of the methodology, allowed for the discovery of insight not possible through my nonnative lens (Caelli et al., 2003; Liu, 2016; Thomas, 2006; Yin, 2016).

## Population and Sample Frame

One of the defining characteristics of qualitative research that differentiates itself from quantitative methods is the sample size and resulting philosophical valuing of data. Creswell (2015) offers the following on obtaining ideal quantitative sample sizing "it is important to select as large a sample as possible, because with a large sample there is less room for error in how

well the sample reflects the characteristics of the population” (p. 76). He goes on to offer that “the intent of quantitative sampling is to be able to generalize from a sample to a population” (Creswell, 2015, p. 76). The philosophical grounding within this method seeks validity confirmation through the greater degree of numerically calculated power from which the sample can attempt to represent the population. More participants help create higher algorithmic degrees of certainty by which generalizations could be made (Creswell, 2015; Creswell & Creswell, 2018).

In comparison, Creswell (2015) offers the following on qualitative sample size philosophies, “qualitative research sampling is simply the purposeful selection of a sample of participants who can best help you understand the central phenomenon that you are exploring” (p. 76). A universally accepted number of study participants cannot be found within qualitative research. Instead, the number of expected participants is a product of two conditions: the mode of qualitative inquiry and, potentially most importantly, when retrieval of data on and around the phenomenon becomes saturated, meaning no new insight is obtained by continuing the qualitative data retrieval protocols. The philosophical implications between these two methodologies require a difference in focus and understanding of what a researcher is after. Within a qualitative study, data can be produced directly from the participants within the phenomenon being studied, providing insight focused on your localized problem of practice. Qualitative research can also produce wide-scale generalized insight and solutions to large-scale issues. However, just as for reasons I chose the methodology, it is excellently suited for localized focus on a phenomenon, potentially leading to outcomes or solutions to effect change within a lived environment. This localized focus can effect wide-scale change, but the intent first is rooted in the local environment. For quality methodological protocol, we must outline the planned

population and sample frame (Creswell, 2015; Creswell & Creswell, 2018; Maxwell, 2013; Yin, 2016).

The population of the study came from five Oklahoma City metro area technology centers (See Appendix A). These technology centers serve over 50 public school districts ranging from the massive Oklahoma City Public Schools down to several small Class A communities such as Alex or Paoli. They represent a vast spectrum of economic diversity, from the impoverished inner city and small communities to the upper-middle and upper classes of Deer Creek and Edmond. Along with the economic discrepancies between the communities of the five technology centers, they also represent a diverse population of varying ethnicities, races, and religions. The participants came from a mix of rural, suburban, and urban school districts and communities.

While the study population was large, representing five technology centers, I intentionally sought out a diverse group of communities and cultures to best represent the study's participants, nontraditional female students in male-dominated fields of study. Within these five technology centers, I collected varying insights from similarly situated participants representing the diverse backgrounds from within which they reside. From this exposure, I discovered several themes around the problem of practice that could lead to localized improvement efforts to increase opportunities with the CTE system as a whole.

As mentioned previously concerning sample size, the ultimate data retrieval goal was to obtain data saturation. Because of the limited availability of study participants, a purposeful sample framing was utilized from the population. Yin (2016) offers further insight into the purposeful sampling initiative, "the goal or purpose for selecting the specific instances is to have those that will yield the most relevant and plentiful data – in essence, information rich – given

your topic of study” (p. 93). The very nature of researching nontraditional students, who represent a minority within their programs of study, required a purposeful approach to achieve adequate sampling both in numbers and by way of quality data around the phenomenon (Creswell, 2015; Maxwell, 2013; Yin, 2016).

The sample size of faculty and staff participants was eight overall. A total of five counselors, one from each district, one business and industry coordinator, a non-traditional career advisor, and a welding instructor comprise the total group. No more than two faculty and staff participants came from one district, helping to ensure proper distribution of representation. Each faculty and staff member was identified by their superintendent or fellow faculty and staff as having specifically mentioned experience working with the study’s population, nontraditional students. Each CTE counselor from the five technology centers had direct experience recruiting, admitting, and enrolling nontraditional female students.

The study’s primary targeted sample was nontraditional female adult students currently in their programs of study. For clarity, an adult student means someone at least 18 years of age and can grant their participation consent. A total of ten students were interviewed, two from each district. Their counselors selected each of the students as interview candidates. Intentionality was given to pull students from a wide range of programs of study. A total of six programs ended up being represented in the study. While the population of nontraditional students was limited, I pulled enough candidates to address and answer the research questions. Stating that total data saturation and insight was obtained from just ten students to the overall population feels disrespectful to the population as a whole, but I do believe I obtained high-quality data and feedback that directly spoke to the research questions and localized problem of practice (Creswell, 2015; Maxwell, 2013; Yin, 2016).

Yin (2016) states that “following the redundancy principle leads to an incremental procedure for defining the ultimate number of narrower instances. The procedure means that you will not be able to state, ahead of your study, the number of instances to be covered” (p. 98). While Yin (2016) may offer that you cannot, with certainty, outline the exact number of necessary participants, I believe that the 18 participants interviewed offered an adequate sample size that served as a quality baseline and representation of the localized population. Towards the end of the interview process, I started to obtain data saturation due to the protocol's lack of new insight or perspectives (Maxwell, 2013; Yin, 2016).

### **Informed Consent**

The University of Oklahoma’s Institutional Review Board (IRB) reviewed and approved this study (See APPENDIX D). Their role is to help ensure that research is conducted in a manner that adheres to local and federal regulations and, more importantly, protects research participants from undue harm. As a part of conducting research with IRB standards, a Consent to Participate in Research form must be obtained to ensure that participants partook voluntarily and knew of their individual rights as required by local and federal regulations.

All research participants involved in this study did so voluntarily and on their own accord. A Consent to Participate in Research form, authorized and approved by the University of Oklahoma’s IRB, was signed and obtained from all participants before beginning their interviews. The Consent to Participate in Research form provided an introduction to the study and information on their individual rights and controls throughout the process. This included an explanation, amongst others, of the purpose of the research, potential risks for the participant, compensation information, confidentiality questions, and permission to audio record the interview (See APPENDIX F).

For fairness and transparency, the Consent to Participate in Research forms were disseminated, when possible, to the participants before the day of the interviews to give them ample time to review. The faculty and staff participants were emailed a copy of the form and asked to review it for themselves and give it to the students once they were chosen. Most participants could review the consent form beforehand, but a few were given the form the day of to review based on availability. If a participant was given the form on the interview day, I offered individual time without me to examine. As was done with each participant, I reviewed the consent form line by line, clarifying any questions and only progressing forward when they provided signatures and stated they were ready to begin. All signed Consent to Participate in Research forms are filed and securely stored.

### **Data Analysis**

The purpose of this study was to gain a greater understanding of the gender inequality gap for nontraditional students within traditional trade and industry programs of study. To gain a better understanding and necessary perspectives within the problem of practice, I had to stretch beyond the literature and gain firsthand insight from the localized focused participants. To produce research considered valid and creditable to accomplish the study's purpose, I took these in-person face-to-face interactions and accurately developed the information from raw interview transcriptions and observational field notes to finished formalized data (See APPENDIX E). This data embodies the lifeblood of qualitative research, the nonnumerical evidence, information, and knowledge that translates into a means of understanding a phenomenon, specifically through the participant's perspective. The data analysis cycle that produces codes and themes begins and operates with the understanding that as a qualitative researcher, I am both an observer and participant by way of interactions and existence in the environment. As Yin (2016) explains,

“participant-observation is not in itself a data collection method. As a participant-observer, you still must undertake some specific activity to collect data” (p. 138). In this spirit, I acknowledge that I was an intricate part of the process, serving as the data obtainment instrument and data analysis operator (Creswell, 2015; Creswell & Creswell, 2018; Maxwell, 2013; Yin, 2016).

### *Data Saturation*

Within the data analysis cycle was the pursuit of data saturation, signifying that I had obtained, to a degree, the limits of feedback, information, exposure, and perspective in and around the phenomenon being considered. Creswell (2015) further explains this concept of data saturation by stating, “saturation can be defined as the point in data collection when the researcher gathers data from several participants and the collection of data from new participants does not add substantially to the codes or themes being developed” (p. 77). My intentional pursuit of obtaining data saturation was to ensure the proper and, to the highest degree, complete representation of views and insights from all relevant participants within the phenomenon. Successful data saturation begins with transparent, well-developed research procedures that ultimately result in the formulation of codes and themes that are clearly developed and tracked directly from the data and phenomenon.

While my protocol included various qualitative data sources and perspectives, semi-structured interviews, and observational field notes, the study aimed to obtain relevant data saturation of developed codes, leading to well-defended themes. Data saturation within my study was accomplished not necessarily by accumulating every possible outcome or response that could ever be proposed from my protocol but instead because, at the end of my interview responses, I was getting little to no substantial additions to developing codes or themes. Ultimately, these efforts ensured the proper representation of the participants and showed my

commitment to fully understanding the phenomenon through the native lens (Creswell, 2015; Creswell & Creswell, 2018; Maxwell, 2013; Yin, 2016).

### ***Codes and Themes***

A total of 10 nontraditional students and eight CTE faculty and staff were interviewed one-on-one and recorded, with signed consent, using a Zoom audio recorder. All eighteen interviews were transcribed using REV transcription software, followed by manual accuracy verification by listening and checking for errors. Upon the completion of all interviews and after verifying accurate transcripts, the coding process would begin.

All transcripts were manually coded line by line. Following a week away from the data, all transcripts would be reviewed and manually coded line by line again to ensure the most accurate representation of the study participants' experiences and thoughts. The intentional effort to manually code all transcripts twice was made to ensure the data's accurate development. The result would be first, second, and third-level codes. Once all coding was completed, a developed list of codes would begin to amass. From these and within contextual consideration of the protocols, themes began emerging from the data. The resulting thematic developments provided new insight and a better understanding of the phenomena, helping to sharpen the focus on the purpose of the study and directly addressing the research questions (See APPENDIX E).

### **Role of the Researcher**

As is the inherent nature of applied social science, the researcher is an active participant, not just an observer of the environment and participants. Considering this, my role began as a participant observer (Yin, 2016). Not only was I the primary data collection tool by way of semi-scripted interviews and observational field notes from the interviews, but I was also the decision maker of any adjustments to protocol. Additionally, the sole responsibilities of the data analysis



process fell upon me. Maxwell (2013) captures the complexities that can arise for the researcher when he suggests that “the activities of collecting and analyzing data, developing and modifying theory, elaborating or refocusing the research questions, and identifying and addressing validity threats are usually all going on more or less simultaneously, each influencing all of the others” (p. 2). I believe that while these intermixing realities and the accompanying complexities may be inevitable, to avoid negatively affecting the process and results of the study, I had to be attentive to the details and focus on properly completing the task at hand, then moving on as necessary (Maxwell, 2013; Yin, 2016).

Digging deeper into the role and responsibilities of the researcher, one needs to look into the conceptual framework of what they hope to accomplish through such a project beyond their selfish endeavors to include how it affects the participants being studied. Yin (2016) excellently frames this idea when he says, “in addition, a qualitative study based on action research can deliberately define a participatory mode of cooperative inquiry” (p. 19). A researcher can approach a study with additional motivations beyond academic exercise or professional responsibility to include positively affecting change in the local setting. As Yin suggests, they can approach a situation, phenomenon, or problem of practice with a participatory mode of cooperative inquiry where the research process can serve as an agent of insight for all involved parties and a potential catalyst for change. Together, the participants and researcher can navigate and discover potential successful remedies or solutions to the problem of practice, possibly improving their situations. I believe, in particular, within my topic of study, that the research process produced more than just data. Instead, it was a growth opportunity for all participants through intrinsic reflection and exposure to new experiences (Maxwell, 2013; Yin, 2016).

## **Researcher Reflexivity**

As has been mentioned previously, among the roles of a researcher is the sole data retrieval and analysis agent of the study. To ensure the most authentic representation of the participants and surrounding phenomenon, a focused effort must be made to approach and progress through the methods with objective intentionality, free from the biases and influence of the researchers. While this is the goal, the reality is that a researcher is human with all accompanying background influences, both personally and professionally. Beginning with topic selection, a researcher must choose something and is typically pulled to a particular topic based on experiences in the field or general interest. My particular topic, a feminist equalitarian project within the CTE educational realm, was an example of this due to my experience in the field and personal motivations of being drawn to the successes of the phenomenon's participants.

Good research, especially within the GIQM, must acknowledge these realities and follow its proposed protocols, paying particular attention to researcher influence or reflexivity within the study. Suppose a researcher leaves legitimate questions about their methodological professionalism and transparent adherence to a pure representation of the phenomenon. In that case, the entire study risks losing its credibility, yielding all work and results as potentially invalid. Because of this, reflexivity must be discussed and defended within your methodological frameworks. According to Maxwell (2013), "reflexivity – the fact that the researcher is part of the social world he or she studies, and can't avoid either influencing this or being influenced by it" (p. 90). We must not shy away from the reality that, as the primary data collection tool, our biases can influence the findings, including the experiences themselves from within the field. Through the research process, I self-assessed and realigned when necessary to approach the study with an unbiased or untainted perspective that could have altered the results. One of the

best strategies I implemented was the use of journaling throughout the collection of data, allowing me to capture my thoughts and reactions to each participant. This intentional effort allowed me to accurately interpret and frame the responses as they were developed into codes.

Creswell & Creswell (2018) capture the essence of reflexivity when they state, “in qualitative research, inquirers reflect about how their role in the study and their personal background, culture, and experiences hold potential for shaping their interpretations, such as the themes they advance and the meaning they ascribe to the data” (p. 182). As Creswell & Creswell offer, reflexivity extends beyond the adherence to protocol within the field and data retrieval processes to include the data analysis itself. This again represents a potential threat to validity in the selection and development of findings, particularly the data-derived themes that represent the large-scale takeaways from the research. Creswell & Creswell (2018) offer the following, “with these concerns in mind, inquirers explicitly identify reflexivity their biases, values, and personal background, such as gender, history, culture, and socioeconomic status (SES) that shape their interpretations formed during a study” (p. 183). To ensure that the project as a whole could be accepted as a professional addition to the educational research collection, I intentionally paid attention to my biases, background, and influence within the process, being both transparent and intentional in the collection and analysis of all data (Creswell & Creswell, 2018; Maxwell, 2013; Yin, 2016).

### **Trustworthiness, Credibility & Validity**

These three concepts within the research realm represent a wide swath of philosophical ethics and conceptual worldviews, and all are used to gauge the researcher’s reliability. Without intentional adherence and a writing style that provides transparency to the reader, a study will be viewed as lacking professionalism and deemed unreliable. There may not be another mode of

inquiry within any methodology that requires such a high level of adherence to these concepts as the GIQM because of the openness to free-flowing protocol, influenced only by the researcher. Because of this, I systematically referenced these concepts throughout the first chapters of this study, attempting to establish a sense of intentionality preemptively. As a researcher, the questions of our adherence to each of these ethical paradigms should not be seen as a challenge to our character but rather posed as assurances that the study as a whole provides an accurate, objective representation of the phenomenon and participants (Creswell & Creswell, 2018; Maxwell, 2013; Yin, 2016).

Because of the interconnected nature of these concepts, it is essential to provide philosophical context as it relates to the research study. Through these concepts, the goal was a product that shined a high level of researcher reliability. Creswell & Creswell (2018) state, “qualitative reliability indicates that the researcher’s approach is consistent across different researchers and among different projects” (p. 199). To achieve this, the all-encompassing research must be foundationally grounded within a high level of validity. Creswell & Creswell (2018) offer the following, “validity is one of the strengths of qualitative research and is based on determining whether the findings are accurate from the standpoint of the researcher, the participant, or the readers of the account” (p. 199). Through my reviews, I believe this to be the best definition of validity to use as a frame whenever the term is referenced due to the acknowledgment of findings being accurate to the researcher and the participants themselves (Creswell & Creswell, 2018; Maxwell, 2013; Yin, 2016).

As an antagonist to this uniform acceptance of the terminology, Maxwell (2013) states, “the validity of your results is not guaranteed by following some standard, accepted procedure.... Instead, it depends on the relationship of your conclusions to reality, and no methods can

completely assure that you have captured this” (p. 121). Maxwell highlights this distinction because, once again, the role of the researcher is paramount to the entire research process, regardless of methodology. Suppose the individual does not copiously describe the process, protocol, and inevitable reflexivity concerns, especially within the data analysis stage. In that case, the reliability of the findings cannot be achieved. I feel that Maxwell’s use of the word reality should be noted as it represents the objective existence of data from within an environment regardless of the presence or actions of the researcher. Validity exists within findings when the researcher can objectively express the reality of a phenomenon, and when examined by a reader, a similar understanding can be achieved. Using these respected writers’ works and findings as inspiration, I worked with an intentional focus to try and craft findings that could articulate a theoretical pull of the curtain back and exposure of the realities and existence of an environment void of outside influence (Creswell & Creswell, 2018; Maxwell, 2013; Yin, 2016).

The descriptions of the concepts of validity and reliability interrelate with the ideas of researcher trustworthiness and credibility. If a researcher intentionally pursues valid findings with an accurate representation of the phenomenon, it translates to researcher credibility. If a researcher produces a study with a high level of reliability, it represents professional consistency. These concepts working together overall provide a sense of the researcher’s trustworthiness. As an additional note on building trustworthiness, a researcher must present and discuss contradictory or outlier findings inconsistent with an established theme. They do not represent a failure of the process or improper protocols; instead, they can be opportunities for further clarification or necessary research. While potentially challenging to quantify, a researcher’s trustworthiness directly relates to professionalism and credibility. These terms can become quite

intermixed, but the general concept is that the role of the researcher is everything in the study's credibility (Creswell & Creswell, 2018; Maxwell, 2013; Yin, 2016). A detailed description of these concepts was given to help frame the methodological focus I undertook throughout all phases of the research cycle to individually be considered as possessing a high level of trustworthiness and credibility. Because of this, I believe my researcher reliability provided the foundation to consider my efforts and findings as possessing a high level of validity.

### ***Validity Strategies***

A researcher can do a few intentional processes to help ensure a high level of validity. The first is to strive for data triangulation or accumulating data from multiple participants and perspectives to help identify and defend large-scale findings or themes. According to Creswell & Creswell (2018), "if themes are established based on converging several sources of data or perspectives from participants, then this process can be claimed as adding to the validity of the study" (p. 200). While it is the responsibility of a researcher to bring data together to represent the phenomenon most accurately, their ability to properly organize the findings into a multi-layered defense across all protocols, incorporating various research data will produce a research project worthy of being called valid, reliable and credible (Creswell & Creswell, 2018). Using the words of Creswell & Creswell as inspiration, through the design of my study, I sought out multiple perspectives from various backgrounds and positionality to arrive at thematic conclusions. These thematic conclusions were explained and defended using multi-layered supporting perspectives representing the power of convergent data sources in proving researcher reliability and validity.

## **Transferability**

According to Yin (2016), “transferability involves a slightly more modest claim than might occur with analytic generalization, as transferability readily acknowledges the uniqueness of the local conditions in an initial qualitative study” (p. 106). I was drawn to this explanation by Yin because of the emphasis on the uniqueness of a localized problem or phenomenon. As is within qualitative research, a problem of practice has the potential to be entirely localized where large-scale generalization is not possible or realistic. Transferability comes into play regarding the discovered, documented, and referenced themes or findings that can potentially hypothetically extend beyond the localized environment. These generalized findings can be utilized for similar circumstances or research when conceptually framed in their contexts. Maxwell (2013) adds to the discussion by stating, “generating results and theories that are understandable and experientially credible, both to the people you are studying and to others” (p. 31). The grounds of transferability fall from this “experientially credible...to others” (Maxwell, 2013, p. 31). In the spirit of these words by Yin and Maxwell, I believe the findings of my study to be transferable because of the localized focus on the phenomenon, void of generalized concern beyond that of thematic conclusion discussion. I also believe the study's findings can be taken into a broader context of large-scale related conceptual generalizability development when considering the localized setting from which they came (Maxwell, 2013; Yin, 2016).

## **Summary**

Guided by the purpose of seeking a deeper understanding of a localized problem of practice involving nontraditional students within the CTE setting, I believed in executing a GIQM. I was fully aware that I was a nonnative of the phenomenon being studied, bringing with me a positionality of seeking to understand how to provide more significant opportunities for

female students. Maxwell (2013) provides a defense of sorts of embracing one's reality as a researcher when he states, "the explicit incorporation of your identity and experience in your research has gained wide theoretical and philosophical support" (p. 45). Considering Maxwell's words, intentionality was given to maintaining awareness of my reflexivity to produce work worthy of being called valid and reliable (Creswell & Creswell, 2018; Maxwell, 2013; Yin, 2016).

To further seek to understand the phenomenon, I intentionally incorporated data from various perspectives and sources to achieve triangulation. While at times an overused term within the qualitative research community, triangulation translates to an intentional pursuit of seeking varied layers of data, representing perspectives and experiences beyond a single stream of existence for the participants. This collaborative mixing and sorting to find commonalities and interwoven themes revealed true insight into the problem of practice, particularly answers to the study's focused question of why, which would prove to be the most valuable findings for those involved. According to Yin (2016), "qualitative research acknowledges the value of collecting, integrating, and presenting data from a variety of sources of evidence as part of any given study" (p. 11). In the pursuit of a proper deeper understanding, qualitative data was obtained through various perspectives, all directly in and around the phenomenon, including semi-structured interviews with CTE faculty and staff followed by nontraditional students. Additionally, I recorded observational field notes from the interviews to capture the intricacies of the experience. Through the intentional review, coding, thematic analysis, and organization of the data, the sequenced efforts shed light, revealing true insight into the phenomena of the study (Creswell & Creswell, 2018; Maxwell, 2013; Yin, 2016).



## **CHAPTER 4: RESEARCH RESULTS AND ANALYSIS**

The purpose of this study was to gain a deeper understanding and appreciation of the phenomena surrounding nontraditional students within traditional CTE trade and industry programs of study to discover practical and real-world applicable and equitable actions that can be taken to provide equal opportunities for all. The research design, general inductive qualitative methodology, was intentionally chosen to best accomplish this purpose. The method allowed me to gain firsthand insight and knowledge of the phenomena from nontraditional students and others directly involved as CTE faculty and staff. Through semi-structured conversational interviews utilizing a tailored protocol for the two research participant categories, nontraditional students and faculty and staff, findings developed and further shed light on the localized problem of practice (See Appendix B & C).

A total of 10 nontraditional students and eight CTE faculty and staff were interviewed one-on-one and recorded, with signed consent, using a Zoom audio recorder. All eighteen interviews were transcribed using REV transcription software, followed by manual accuracy verification by listening and checking for errors. Upon the completion of all interviews and after verifying accurate transcripts, the coding process began.

All transcripts were manually coded line by line. Following a week away from the data, all transcripts were reviewed and manually coded line by line again to ensure the most accurate representation of the study participants' experiences and thoughts. The intentional effort to manually code all transcripts twice was made to ensure the data's accurate representation. The coding process resulted in first, second, and third-level codes. Once all coding was completed, a developed list of codes began to amass. From these and within contextual consideration of the protocols, themes began emerging from the data. The resulting thematic developments provided

new insight and a better understanding of the phenomena, helping to sharpen the focus on the purpose of the study and directly addressing the research questions.

The study's central research question was *why do we have such an underrepresentation of women in our CTE trade and industry programs?* Both interview protocols were intentionally designed to approach this question from multiple angles, allowing me to examine the phenomena best. Secondary questions were established to help further the breadth and width of potential findings in and around the phenomena, resulting in better research. The three additional secondary research questions were:

- What barriers exist for women entering traditionally male-dominated trade and industry programs?
- Where did the interest, inspiration, or idea of pursuing a nontraditional path originate for women who enter their programs of study?
- What can be done to increase the equitable enrollment figures?

The research results and analysis chapter are divided into three sections. The first section addresses the data and resulting themes from the nontraditional student participants. The second section addresses the data and resulting themes from the faculty and staff participants. The third section represents an overall thematic analysis and findings report of the study. Through the breakdown of these sections, I highlight the similarities and differences in perspective around the phenomena allowing the primary-based data to answer the main research question. Further, through a discussion of findings three major emerging themes emerged.

## Nontraditional Student Participant Information

**Table 1**

*Description of Nontraditional Student Participants*

<b>Nontraditional Female Student Participant</b>	<b>Age</b>	<b>Geographic Location of Residency</b>	<b>Program</b>	<b>District</b>	<b>Geographic Location of District</b>
Student 1	18	Rural	Precision Machining	CVTC	Suburban/Rural
Student 2	18	Rural	Welding	CVTC	Suburban/Rural
Student 3	24	Urban	Construction	MTC	Urban
Student 4	19	Urban	Auto Collision	MTC	Urban
Student 5	23	Urban	Diesel	FT	Suburban/Urban
Student 6	18	Urban	Diesel	FT	Suburban/Urban
Student 7	18	Suburban	Welding	MNTC	Suburban
Student 8	35	Suburban	Auto Collision	MNTC	Suburban
Student 9	19	Rural	Welding	MATC	Suburban/Rural
Student 10	18	Rural	Auto Service	MATC	Suburban/Rural

### *Student 1*

She was an 18-year-old senior in high school enrolled in her 1<sup>st</sup> year of the Precision Machining program. She expressed no desire to pursue college, instead preferring hands-on learning and, as a result, sought out training options. She stated, “I knew that I could have an opportunity to get an actual career through the Vo-Tech and that being ultimately a CNC operator, I would have a good chance to make good money and work on machines.” As was mentioned earlier in Ch. 1 and for context throughout the study, when Vo-Tech is mentioned, it refers to the physical technology center location or CareerTech (CTE) system as a whole. She expressed that she had no previous experience with the material or family members involved in

the field, only a strong desire to work with her hands and an interest in the opportunities available after program completion. Of particular interest from the interview, she said that when she mentioned her plans to her high school counselor, she received nothing but support in her nontraditional career plan. She also expressed that one of the most significant factors in her enrollment was the overwhelmingly positive influence of the CTE instructor on her recruiting visit. She stated about the instructor, “He gave me reassurance that this could be something that I could do.” She said she was the only female in her program.

### ***Student 2***

She was an 18-year-old graduate from the local high school’s alt-ed program. She was in her 1<sup>st</sup> year of the Welding program. She chose the program and pathway because “I wanted a job that’d be able to support my family.” Throughout the interview, she expressed several times that she decided to become a welder because of the money and job security. She shared that she had grown up around the field because of her dad, a welder. Also, she said that despite his initial protests, she chose the program for herself because she knew the opportunities available. An interesting takeaway from the interview was that she repeatedly expressed that she did not want to be treated differently or given special treatment just because she was a female. Instead, she should be treated equally to any guy. She said she was the only female in her program and, to her knowledge, the only female in any traditionally male-dominated program of study.

### ***Student 3***

She was a 24-year-old full-time adult student in the construction program. She was a single mother of one who had previously completed an LPN (Licensed Practical Nurse) program but chose to return because this was the professional route she always wanted to take. When asked about this, she stated:

I decided to come to construction because growing up, my nana, she owns a lot of properties around Oklahoma City and she raised us up, training us to work on her properties and learn how to install windows, framing, just do flooring, anything. So, then, I just grew to love it. So, I wanted to do it growing up, but then my family talked me into going into the more traditional fields, so I wasted time doing those. And it was like, I really want to be hammering and stuff. I really want to put stuff together.

Her story was reminiscent of many other nontraditional students in that she always wanted to pursue a nontraditional pathway but was steered away because it wasn't culturally appropriate. She was regularly used in the technology center's recruiting and marketing initiatives because of her willingness to speak about her journey. She was the student of the year for the campus and an open advocate for other nontraditional students. She said several other females were in her program and believed it was partly because "a lot of women like to make pretty stuff."

#### ***Student 4***

She was a 19-year-old full-time adult student enrolled in the Auto Collision program. She said she chose to enter the program because she had grown up around auto mechanic shops and family members who regularly worked on their vehicles. She shared, "So I was like, why can't I do that? I could do it too, if they could do it." This statement echoed similar sentiments across the nontraditional student interviews, a belief that if they (men) can do it, there is no reason a woman can't. Interestingly enough, despite her family influences and experiences, she said she could not enroll and attend the program in high school because her parents were against it. She stated, "At first, they were like, no, that's a more male type of career." But, to her credit and persistence, she finally convinced them that this was the path she wanted. She highly

praised the technology center faculty and staff in supporting her and making her feel welcome. She said there were several other females in her program and thought it was because the class allowed creativity due to all the painting and metalwork they do.

***Student 5***

She was a 23-year-old full-time adult student enrolled in the diesel program. When asked why she chose the diesel program, she stated:

You just see these giant semis down the highway but don't know who's behind it working on them. I've always been one to want to take things apart and put it back together. My mom said I did that with my toys all the time. She'd buy me something new and I'd take it apart, but I couldn't always put it back together. But I wanted to see how they operated and how all these components could make this one giant machine just like work and it's great and travel around the world. Some engine has to be able to drive all around the country and I thought that was the most fascinating thing.

Her story was both interesting and representative of the struggles nontraditional students face. It started in high school when she wanted to attend the HVAC program, but her mom did not let her because it was a man's field. After high school, she attended college on a track scholarship but did not finish because she said she lost interest. She explained that she was finally happy to be at the technology center pursuing a career she was excited about. She had nothing but praise for her technology center for supporting and welcoming her. She was the only student who mentioned clothing issues for women students, in that most shop clothes are made for men, not women's bodies. She said that while there are other females in diesel, she wished there were more because she has learned the necessity of creating a boundary between herself and other male students to avoid making any uncertain terms in their interactions. She spoke a lot about the

complexities of navigating male personalities and relationships while being in the vast minority as a female in a male-dominated course. She was chosen as the student of the year for the diesel program.

### ***Student 6***

She was an 18-year-old full-time adult student enrolled in the diesel program. She said she initially chose nursing in high school but felt out of place, instead transferring to the auto service program. She shared:

I went to the pre-nursing program for about a week and then was like, yeah, nope, I don't feel comfortable here. I felt out of place and I was just uncomfortable and I looked across the street and saw the automotive building and was like, I think I'd rather be there.

After completing the auto service program in high school, she returned as an adult student in diesel. She said she was fascinated with working on the biggest equipment possible, and the diesel program would allow for those opportunities. Of all the students interviewed, she visited the most about her physical limitations as a small-statured female student. She spoke about how her physical limitations had made her learn how to do things differently, using tools and equipment to her advantage. She was not the only female in diesel. She mentioned there had been several come and go throughout the year. Her only thought as to why some females don't last was that they didn't know about the realities of the program and what it takes to make it regarding the physical requirements.

Of note to the study, she was the only student to speak about or bring up her gender identity. Unprovoked, she mentioned:

When I was in high school, especially when I was a sophomore, I also was questioning my gender identity for a while...Being in a male-dominated field made me realize I'm not a boy. I am just not a traditional girl. And that had a lot to do with why I went into a male-dominated field because I was more comfortable with males. Well, okay, not more comfortable. That's not necessarily the right word, but I fit in more, and that's one of the big reasons why I thought that I was a guy for a while. It was like, I don't fit in with girls. I never have, well, I don't think I ever have.

While not an intentional part of the protocol, her response was interesting in bringing questions once again about gender roles within society, a constant theme throughout the study.

#### ***Student 7***

She was an 18-year-old senior in high school enrolled in her 1<sup>st</sup> year of the Welding program. She said her inspiration came from her mother, the CFO of a local construction company. Through her mother, she had become aware of the career opportunities and pay available if she was a certified welder, so she enrolled. She planned to complete the Welding program the year after high school while working part-time with her mother's company. She brought up that she wanted to work a few years in the field, then return to college and work towards an associate's degree. She mentioned that her mom's company would pay for her education. She said the technology center was supportive and positive in her plan. She said several other females were in the Welding program, which made her happy, but she wished she had known before as she was very near to not enrolling because she didn't want to be the only one. This was a constant theme throughout the study: Female students do not want to be the only ones in a program, which could be enough to prevent them from enrolling. She said she had been



used in several marketing and recruiting efforts by the technology center and enjoyed interacting with other potential nontraditional students.

### ***Student 8***

She was a 35-year-old full-time adult student enrolled in the Auto Collision program. She was the student of the year for her entire technology center district and the recipient of a major chamber of commerce student of the year award for her outstanding academic performance and perseverance in overcoming obstacles in her personal life. She shared that she moved to Oklahoma from New York several years back with just her two children. She did not have a high school diploma or job prospects. But, with hard work and perseverance, she was able to return as an adult and complete a GED through a program within the technology center. Upon completing her GED, she was enrolled in the Auto Collision program and excelled. While she spoke glowingly of the technology center and everyone who had helped, she talked about how she was always told she had no business working in a man's world, particularly anything auto-related.

She stated:

I was always told not to be entertained by cars. It wasn't my place. I needed to be more ladylike. I need to do what the girls do: bear the children, have the children, cook the meals. And I did it for a while, loved it. And I got bored and I decided that I wanted to switch things up.

She said that before she could start the program, she was told by several auto mechanics that she would never make it as a mechanic because she was a woman. She stated:

When I was working through AutoZone, while I was waiting to start school, and I told them my plans about going into this specific field, I would deliver parts to garages.

Every single mechanic told me, you ain't going to be able to do it. You can't lift the heavy weight. It's not worth it. You're going to drop out.

The only negative thing she could speak of regarding the technology center was the classroom relationships or interactions with the younger male students. She said numerous times that they were often jealous of her and how good she was, and because of that, they would try to intimidate her or be unkind. When I asked how she handled it, she said she took care of it herself, sometimes letting it pass and others standing up for herself. She mentioned that if she had run to the instructor and told on them, it would have made her look weak and feed into the stereotypes of her not belonging in a shop. She was not the only female in the program. She said she was often used in marketing and recruiting efforts to help attract more females, and she loved being able to help. At the time of the interview, she was only a few days away from completing the program and had an outstanding job waiting for her at Tinker Air Force Base painting aircraft.

***Student 9***

She was a 19-year-old full-time welding student enrolled in the Welding program. When asked why welding, she responded:

Well, I've always paid attention to my stepdad welding, and I welded a little bit in ag and I was like, I don't want to go to college, so what can I do? What would I like to do that would be fun and that's hands-on learning? And I was like, well, I could try welding.

She mentioned that she could not attend while in high school because of sports, but also, she did not know what she wanted to do. She knew college was not for her. She wanted something hands-on and had always been interested in welding. She initially got resistance from her family in deciding to enroll but pushed through anyway. Of interesting note, even though she mentioned she was interested in welding, her interest was not in the traditional sense of working in a

manufacturing plant or pipeline making big money. She routinely spoke of her interest in sculptures or artistic endeavors, as in the choice to enroll in the class being of more personal interest. She said she was the only female enrolled in Welding and kept to herself mostly, as the guys can get annoying or bothersome in the daily grind of class.

Also of unique interest from the interview was our conversation about the influences of social media on her. She spoke about several different social media influencers and their impact on getting her interested. Further, she shared the various projects and activities the influencers were involved with and their success both in the financial and follower sense. While this portion of the interview would occur at the end of the protocol in the “Do you have anything extra to share” question, Student 9 exhibited the most exuberance and excitement when speaking about social media and the power of seeing other successful women welders. While initially unconsidered, her example and unconventional insight directly fed into and related to a common theme throughout the student interviews: a need for mentorship, guidance, or community with fellow female welders.

### ***Student 10***

She was an 18-year-old senior in high school enrolled in her 1<sup>st</sup> year of the Auto Service program. She shared that her interest in working on cars came from home, working on various projects with her dad throughout her childhood. Even with the early exposure at home, she faced resistance when enrolling. She did share that her parents did not take long to change their minds and support her choice. Throughout the conversation, another theme would continue to develop: The female nontraditional student wants to build their knowledge or skillset for independence or self-reliance. For example, when asked why she wanted to enroll, she stated, “Being able to do

something on my own. If I break down on the side of the road, I want to be able to do something myself and not have to have somebody do it for me. Feel more independent.”

Interestingly, she also spoke about the pressure from her friends to enroll and choose a nontraditional pathway. She stated:

At the beginning my friends are like, Why are you going to do that? Why would you do that? That's not your job. That's a guy's job. When you get married, a guy's going to do that for you. I'm like, no, because that's not how it should be.

Throughout the interview, Student 10 displayed a strong sense of seriousness toward her pathway and program, defending the utility of the knowledge she is receiving. She goes as far as saying, “I was there to learn. I'm not there to make friends. I'm not.” This highlights another theme from the student interviews: The successful nontraditional student exhibits resiliency and determination to overcome being in the minority.

### **Nontraditional Participant Interview Protocol Responses**

The individualized protocol used during the nontraditional student interviews was broken into seven sections (See Appendix C). Five of the sections were tasked with approaching the research questions directly and indirectly. These sections were called barriers, interest & inspiration, increasing participation, student experience, and, within the concluding section, the central research question itself. Intentionality was given to the design and drafting of the protocol to ensure the research questions were adequately addressed. Through coding and thematic development, it appeared that this planning successfully provided data in and around the localized problem of practice and within the scope of all research questions. To further understand the findings, each section and the participant’s responses will be discussed.

## **Barriers**

Central to the study is the question of what barriers prevent or discourage female students from enrolling in the traditionally male-dominated CTE programs of study. Within the tailored protocol, three separate questions were tasked with getting to the core of this question, specifically from the participant's perspectives who were directly involved with the phenomena, the students.

The first question asked, *what are the leading factors or barriers holding back an increase in enrollment?* The top codes found through the data analysis are listed below in Table 2. While these top six codes do not capture the entirety of the perspectives or experiences of the interviewed students, they do paint a picture of their reality and possible roadblocks for potential students.

**Table 2**

### *Nontraditional Student Responses – Barriers*

<b>Code - Response</b>	<b># of students out of 10</b>
Barriers: Potential Student Misconceptions: Be the only female in the program	9/10
Barriers: Historical Social and Cultural Norms – Gender roles: Afraid to socially take the leap	8/10
Barriers – Unsupported at home – family & friends negative influence -Question choice	7/10
Barriers: Potential student Misconceptions: Females unable to physically do the job	5/10
Barriers: Potential Student Misconceptions: Messy & Dangerous environment	4/6
Barriers: Potential Student Misconceptions: Men don't want Females in class. Treated bad	2/3

All of the nontraditional students responded in various forms, expressing a fear of the unknown or misconceptions about what their program of study would hold. The question was asked from two perspectives: the student's experience and the general perspective of interested potential female students. When asked this, Student 3 responded, "They may be a little intimidated because it's a lot of guys, and so they aren't really comfortable being like that. That sort of outcast." Student 4 presented another potential barrier when she mentioned, "There's girls that don't really like to get dirty." Offering a broader social perspective, Student 5 said:

I feel like growing up as females, we were taught to do certain things. Of course, it starts off in the house. Females don't take out the trash, or they just wash dishes, or they stay home and watch the kids, and they do the cooking and the cleaning, and the husband goes out and does all that. So, I think that's where it starts from. And then watching their parents do that, depending on their culture, they watched their dad get up and go to work, and their mom stay home and do all these house things.

These three responses all correlate to broad reasons for what holds back potential students from enrollment.

The second question within the Barriers section was, *when you first decided to pursue a nontraditional career path, did you experience any harassment, discriminatory behavior, or negative motivations aimed at steering you away from the industry?* The intentionality of this question was to try and gain perspective into the negative recruitment and enrollment influences within the students' lives. The phrasing was done so the student could share their experience and relative general influencing agents for potential students.

**Table 3**

*Nontraditional Student Responses- Negative motivations or influences*

<b>Code - Response</b>	<b># of students out of 10</b>
Negative persuasion: School Official: No	9/10
Negative persuasion: School Official: Yes: Sending School Counselor	1/10
Barriers – Unsupported at home – family & friends negative influence -Question choice	7/10

This particular question and resulting responses were quite telling about the lived experiences and, specifically, the context in which they perceived the question. When asked directly, nearly all participants responded with a “No,” indicating a positive recruiting and enrollment process where they were supported in their decision-making. For example, Student 8 went as far as to say, “I had none. Surprisingly. Everybody was really supportive in the decision I made, and everybody kind of helped me... They just kind of lifted me up.” This response was, like many, generally approving of the support they received from their high school and technology center. Student 5 reinforced this point by saying, “Everybody's been very supportive and surprised at the fact, and I did not realize this many people would enjoy watching a female do such large tasks. Everybody's gone above and beyond to help me reach the goal that I wanted to.”

Only one student said they received negative influence from a school official in the form of questioning her choice. Student 1 said her high school counselor once asked, “Why would you choose that? Are you even interested in that?” This appears to be a singular event among the students, and Student 1 spoke of the interaction lightheartedly, as if she did not consider the conversation very serious.

One particular code would emerge throughout the interviews in various locations. It was revealed that 70% of the students experienced negative support or motivation from family and close friends when they presented the idea of attending a male-dominated program of study.

Student 10 said:

At the beginning my friends are like, Why are you going to do that? Why would you do that? That's not your job. That's a guy's job. When you get married, a guy's going to do that for you. I'm like, no, because that's not how it should be.

Student 9 spoke about not necessarily the hardline negative influencers but gentler attempts to persuade when she said, "No one's like told me, no, you can't do that. But my whole family was thinking, are you sure about this? Because they just didn't expect it." These examples accompany other students' experiences when they spoke of family members trying to guide them into more traditional female roles or reinforce gender stereotypes.

The third question within the Barriers section was, *why does the average female student choose not to enroll and pursue a career in the traditionally male-dominated trades?* This question would again examine the barriers for females interested in pursuing a nontraditional career path in the trades. Table 2 captured the main reasons the students gave for someone not to enroll. Overwhelming, the students mentioned fears of being the only female, challenging gender roles, or physical limitations. Student 5 said:

I believe they might be afraid of what people might think, or that it might be hard, or oh, those things are too heavy, or they're going to have a hard time or get distracted. I believe they think they might be frowned upon and don't have the right people behind them supporting it.



Student 7 spoke of the courage it takes to be a nontraditional student when she said, “We’re walking into a man's field. It's extremely intimidating.” Student 6 captured the most prevalent code that would arise from the data regarding barriers when she stated, “Fear of being in a room full of men and being one of the only females is terrifying as a female.” Being the only female in a program would be expressly stated and mentioned in 9 out of 10 interviews. The only participant not to mention the specific code was Student 5, who constantly spoke about the challenges of being a woman in a male-dominated trade. Given the general context of her comments and the overall popularity of the individual code, it could be stated that a major takeaway of the study was that the overwhelming majority of current and interested female students are concerned with being the only one, surrounded by male students.

### ***Interest & Inspiration***

The interest & inspiration section of the protocol was a very insightful, intentional effort to address the second of the secondary research questions. The protocol was designed to gain insight into the backgrounds and experiences of students who jumped from prospective to current students. The section had two questions that produced findings helpful to both answering the research question and gaining a better understanding of my localized problem of practice.

The first question asked the students, *is there a most popular program for nontraditional students within your district and why?* This question was intended to try and gain perspective from the current students about the overall nontraditional population trends and understand why students choose particular programs. The first part of the question was addressed in Table 4, with 70% of students at least aware of other nontraditional students in other male-dominated programs of study. The remaining three students were all unaware of the status of other programs or unsure if they were the only nontraditional students on campus during their time.

**Table 4**

*Nontraditional Student Responses- Interest & Inspirations: Other Nontrads*

<b>Code - Response</b>	<b># of students out of 10</b>
Know of other non-trad students	7/10
Don't know any other Non-trads in programs	3/10

The second part of the question, *why a particular program is the most popular*, produced fascinating findings. While two of the seven students had no idea why a program would be more popular, the remaining five offered insight into their perspective of program selection and choice, a vital component of the research question being addressed. When asked why they think specific programs are the most popular, the following explanations were given: Student 1 said a student could be “Artsy,” Student 4 said it would allow them to be “Creative,” Student 3 on why a program is popular, “They make pretty stuff,” Student 9 on why a female would want to enroll in a program “if she likes artsy stuff, craft stuff,” and Student 10 would say a female student would choose a particular program because it is “more of a decorating kind of thing, not fixing something.” These explanations were all used to describe why a female would choose a traditionally male-dominated trade and industry program of study, offering descriptions that fed into the feminine gender stereotype by which they were challenging. Interestingly, not many of these descriptors were found throughout the other portions of the interviews in describing themselves or their experiences.

The second question of the Interest & Inspiration section was, *did you have any personal experiences with the content or curriculum being taught? Did you know any females working in the field?* This question was directed at identifying previous exposure before enrollment into the program and determining if prior exposure was a factor in influencing the nontraditional student.

The results are represented in Table 5 below and indicate a strong relationship between prior exposure and enrollment in a nontraditional pathway. The second part of the question, exposure to females in their trade area, demonstrated that it is not a direct relational necessity for students to have grown up around females in the trades to take a step towards enrollment.

**Table 5**

*Nontraditional Student Responses – Interests & Inspirations: Prior Exposure*

<b>Code - Response</b>	<b># of students out of 10</b>
Prior exposure to content: Yes: Family	9/10
Prior exposure to content: NONE	1/10
Prior exposure to females in their trade area: None	7/10
Prior exposure to females in their trade area: Yes	3/10

The interest & inspiration section only had two questions. But, in the introductory section of the protocol, I asked the nontraditional student *what motivated you to attend this technology center, and more specifically, why this particular program of study? Why this industry?* While not in the specific interest and inspiration section, this question directly targeted why a student chose their program, what was the factor that helped them decide to enroll, and why this program, particularly with all other choices available. In reality, this question fits squarely within this section of the protocol and warrants inclusion in the analysis and discussion of the findings as they revealed yet another layer of understanding the phenomenon of nontraditional students. Table 6 shows the coded responses to where and why their interest developed for their program before enrollment.

**Table 6**

*Nontraditional Student Responses – Interests & Inspiration: Why this Program?*

<b>Code - Response</b>	<b># of students out of 10</b>
Interest: Fascination with content & equipment	8/10
Interest: Family/Friend spoke of training opportunities at CTE center	5/10
Interest: Hands-on, Learning style	4/10
Interest: Good career pathway: Opportunities, Money, Security	3/10
Interest: Learn how to work on my own stuff	2/10

The responses and interactions from this question were among the most interesting for me. The perspective offered during the conversational interviews opened a door into the students' world, revealing new insights. When asked why carpentry, Student 3 said:

Honestly, it's like anytime that I'm building stuff, anytime that I'm working on something, it is that time stops. I just feel peace. I feel relaxed. It really feels like therapy to me. It is. It's extremely peaceful. So that's how I knew that this is what I wanted to do.

Student 5 offered further sentiment about why she chose diesel when she said:

I've always been one to want to take things apart and put it back together. My mom said I did that with my toys all the time. She'd buy me something new and I'd take it apart, but I couldn't always put it back together. But I wanted to see how they operated and how all these components could make this one giant machine just like work and it's great and travel around the world. Some engine has to be able to drive all around the country and I thought that was the most fascinating thing.

Showing maturity beyond her 18 years, Student 1 said, "I knew that I could have an opportunity to get an actual career through the VO-tech and that being ultimately a CNC operator, I would

have a good chance to make good money.” While these three statements do not capture the sentiment of all, they offer a glimpse into the “why” a program was chosen, all pressing against the traditional idea of professional gender roles.

The coded findings again demonstrated how powerful of an influence prior exposure to content and family and friends can have on the potential student. These findings, originating from a previous section of the interview protocol, work together with Table 3 and Table 5 to demonstrate the complexity and seriousness by which influences of those closest to the student can affect enrollment. No one is immune to the influencing agents, negative and positive, both in the student’s internal and external circles. As developmental psychology suggests, these influencing agents may have no greater power than during the early formative years of the student’s lives. The findings of the study can support this.

While these questions under the Interest & Inspiration section were relatively straightforward, they yielded findings that directly addressed the secondary research question and built upon the collective perspective of answering the central research question. Through the interviews, each student expressed in their way a sort of confidence and knowledge of potential career paths and content expectations. The students may have expressed concern about being the only female or even had pushback from family or friends on their program choice. Still, because of their firsthand exposure to and interest in the content, as shown by Table 5 and Table 6 results, the students could draw enough confidence from these experiences to take the step and enroll in the nontraditional program of study. Resiliency and determination personified. This particular section of the protocol helped build toward the larger-scale themes of the study.

### ***Increasing Participation***

The increasing participation protocol section attempts to investigate and address the third secondary research question directly: *What can be done to increase the equitable enrollment figures?* This question is at the heart of the purpose of the study and central to helping understand the localized problem of practice. The first question of the increasing participation section is *what should be done by the technology center districts to help increase the nontraditional student population? How could they recruit better?* Table 7 shows the major findings from the question.

**Table 7**

#### *Nontraditional Student Responses – Increasing Participation – Recruitment*

<b>Code - Response</b>	<b># of students out of 10</b>
Increasing Participation: Recruitment idea: see females in marketing	7/10
Increasing Participation: Recruitment idea: see other females in program	4/10
Increasing Participation: Influence agent: CTE Teacher Impact	2/2

Nearly all students expressed a variation of the same suggestion: to see more females in and around the programs during the external marketing cycle and internal tours for potential students. Student 10 offered straightforward yet practical advice on increasing the nontraditional population, “By not making it just about guys.” Student 7 said, “You could start with showing more female students that females do this position and they do really good in a male's role.” While simple enough, it does capture the sentiment of the top two codes retrieved from the data. The third code, CTE Teacher Impact, was about how powerful the instructor can be during the recruiting cycle for a nontraditional student. Student 1 told a story of how the precision

machining instructor motivated her to attend by bragging about how his female students almost always outperform the males and are more successful in the field. She credited his influence as the primary reason she attended her program.

The second question of the Increasing Participation section was *what would have helped persuade you to enroll?* This question attempted to capture another angle of how to increase participation, with many of the same responses and codes occurring as the first question. Table 7 captures the responses. Again, the students spoke about the impact of seeing females in the marketing efforts, both in print and social media and seeing females in the programs when they tour the campus. Student 9, in particular, mentioned the impact of social media when she said:

You see all these YouTubers, women doing these hot jobs, and most people, I didn't even know about it. I never even thought it was a thing. I just thought that's a guy job. That's what guys do. But after seeing it, it's all changing, and you see women doing stuff that they usually wouldn't. So, I feel like that would help if they showed, I don't know, something about how it's not just guys that do hot jobs like that. I just started watching a lot of YouTube and following a lot of people, and there's, what is that Netflix show? It's welding masters. I think that's what I was like, wow, that's cool too.

We must continually be aware of the impact of social media in all regards on the modern educational world, including the influencing of nontraditional students to step out of their comfort zones. With the responses from the students and the codes from Table 7, social media must be seen as a viable avenue for nontraditional students to see other females in practice and operation in male-dominated pathways. It is accessible and present in their lives, providing influence at their fingertips.

### ***Student Experience***

The Student Experience section of the protocol is made up of one question: *For a nontraditional student in your technology center district, what resources exist to support and develop their progress? If none, what do you think would be beneficial?* The intent of this question was to gauge the resources present in their district and get the student's perspective on what would be helpful. While this does not directly relate to a research question, it does indirectly inform the central question in learning how to develop support systems to sustain and promote a climate favorable for nontraditional students to enroll and succeed. Further, the intent was to gain more knowledge about the localized problem of practice to serve better. Table 8 displays responses to whether resources are available or present for the nontraditional student. Table 9 shows ideas or suggestions.

**Table 8**

*Nontraditional Student Responses – Student Experience – Present?*

<b>Code - Response</b>	<b># of students out of 10</b>
Resources: Don't know of any available	8/10
Resources: Nontrad counselor available	2/10

**Table 9**

*Nontraditional Student Responses – Student Experience – Ideas/Suggestions*

<b>Code - Response</b>	<b># of students out of 10</b>
Resources: Idea: Support group of female non-trads	3/10
Resources: Idea: Childcare on campus to help single mothers	1/10
Resources: Idea: Someone (Faculty/staff/Counselor) to check on the non-trads	1/10
Resources: Idea: Would like exposure to females working in the field (mentor)	1/10



Table 8 shows that eight students knew of no specific supports or resources available for their unique population of nontraditional students. The other two students knew of a specialized position within their district, a nontraditional student advisor. Their district was the only one in the state CareerTech system with such a position. Even with the dedicated position, both students spoke of how they knew the person existed but did not get much help from them unless they sought it out. For clarification, the nontraditional student advisor at the district served more of a marketing and recruiting role and less of a counseling or advisee capacity. The nontraditional student advisor was interviewed for this study and will be discussed under the faculty and staff section.

These tables work together to demonstrate some commonalities for the nontraditional student experience. First, most students were unaware of any resources tailored to their needs because they didn't necessarily exist. Second, most students had no idea what they would like or what would be beneficial because they had not had any exposure to such to know. The takeaway from this question was that the nontraditional student does not want to feel alone or isolated in pursuing a male-dominated pathway. They want to be a part of a community, seen and heard in their pursuit, and around other females who know the real struggles.

While the student experience protocol only had one question, additional codes from the analysis and breakdown of the nontraditional student interview transcripts warrant further discussion. The best categorical organization or descriptor of these codes fell under this heading: student experience. They provided a rich insight into the world and experience of the nontraditional students, both positively and negatively. In an attempt to fully capture the experience of the nontraditional students, these codes will be provided in Table 10 below.

**Table 10***Nontraditional Student Responses – Student Experience – During the program*

<b>Code - Response</b>	<b># of students out of 10</b>
Student Experience: Uncomfortable at first, only female, classmates skeptical	5/10
Student Experience: Misunderstood or stereotyped due to being female in a male world	4/10
Student Experiences: Must work harder than the guys to prove myself	3/10
Student Experience: Be mindful of your attire and messages	2/10
Student Experience: (+) Very welcoming environment in Tech Center	8/10
Student Experience: (+) Teacher positive influence /impact	6/10
Student Experience: (+) Treated equal as men	4/10
Student Experience: (+) Evolved positive Family support	3/10

Throughout the interviews, the codes and responses listed in Table 10 developed. They painted a picture of the student's experiences as they navigated from being a new student into more of an experienced role. All interviews were done in April of the student's first year, giving them almost a full academic year within the program of study. Student 3 said the following as it related to her experience, "Anytime that you try to go the non-traditional route, a lot of people forget that you are still a woman sometimes. So then they have to deal with being looked at as masculine." Student 7 said, "When I got to school and I started with school, I realized how mean these young teenage boys really can be, and especially when they're in competition with a woman." Student 9 shared her experience by stating:

I feel like I'm the only one, but I'm sure there's more than just me, but it does kind of suck that girls don't want to do something like that, or most women don't want to do something like that because here I am dealing with guys every day for three hours.

Not all of their experiences were negative, as was evident in the codes provided in Table 10. Most of the students spoke positively about their time within their program of study when considering their experience as a whole. For example, when asked how her experience had been, Student 10 responded, “Everyone’s welcoming.” Student 10 said, “I feel very welcome. My classmates we're very good friends.” Student 2 said of the faculty and staff, “They treat everyone pretty equal, which is a good thing, I think.” I felt that while, at times, the students might have mentioned feeling uncomfortable or out of place, the overall perception of the student’s experience within the technology center was that of gratitude and pride in their accomplishments.

#### ***Central Research Question – Nontraditional Student Responses***

Towards the end of the interview protocol, tucked away in the concluding section, was the central research question. The central research question was, *why do we have such an underrepresentation of women in our CTE trade and industry programs?* The decision to include the central research question verbatim at the end of the interview allowed the student to exercise their general thoughts on and around the topic to develop through the conversational approach of the interaction. Most responses reflected this with thoughtful recollections from previous questions, yet some pulled more of their experiences into the conversation. The following are not the entirety of the student’s responses to the question. Instead, they represent the scaled-down theme of each.

Student 1 synthesized a number of her previous responses when she said, “I feel like whenever women try to go into these types of fields, it's not very welcoming first off, and then

it's not something most would be interested in considering, it is a dangerous and a dirty working environment.” Student 2 continued reflecting on stereotypes and her journey when she stated, “Because women, even though they want to do it, it's harder to when we are literally forced growing up, that is a man's job. It's not a woman's job.” Student 3’s response represented her struggles when she said:

I guess just confidence. A lot of women aren't confident in themselves, whether it's from past trauma, whether it's just from childhood with them growing up in people not really speaking life into them. They are just used to shrinking. And I think it's time that we show up bold, that we show up confident, that we step into everything that like that we are called to. So I think we just need more confidence.

Student 5, offering her perspective through the lens of her experiences, said about the question:

Several things. They're taught at a young age. Women are meant to cook and clean and not work getting their hands dirty. There's a saying going around that the men from the men's perspective, they say, I get my hands dirty so she won't have to. I kind of don't agree with that in a sense, but I respect that they want to go to work and provide, but there's nothing wrong with both of us doing the same thing or me doing that. Are you staying at home and cooking and cleaning? There's that being raised. And then, when they show up to schools like this, they only see males in the industry. They don't see any females over here. So that's why I try to show my face as much as possible and help when I can.

Student 7, speaking with more years as a working female in a male’s world, responded:

I think it's a competition thing, not a competition thing, an ego thing. When it comes to men, I think it's a huge ego problem. Men are very egotistical when it comes to their

careers and their positions that they hold. And a lot of men are raised still to this day that all women are beneath them.

Student 9 kept her response simple: "The only thing I can think of is they just think it's a man's job."

By the time the central research question was asked in the protocol, I felt like a good open conversational rapport had been established between each student and myself. The responses about the student's experiences and struggles walking the nontraditional path were very insightful. Witnessing their verbal and nonverbal responses firsthand, each student was very passionate when discussing their choices and path. They represented the student who was able to overcome the fears, self-doubt, and negative social pressures to pursue their dream. Because of this, it was hard not to be inspired by their stories and accolades.

### **Nontraditional Participant Thematic Findings**

The nontraditional student interviews were from a diverse group of young trade and industry female students in and around the Oklahoma City metro area. They represented a range of 18 – 35 years of age and a unique mixture of backgrounds. Through these differences, themes would emerge, uniting them across their experiences and providing context for the study. From the coding of the interview data, four particular themes stood out: The effect of gender roles, exposure to content experience at a young age, to get more give more, and the binding characteristic of resiliency. The themes discovered from the nontraditional student interviews will be discussed in the following sections.

#### ***Effect of Gender Roles***

The immense impact of socially and culturally entrenched gender roles cannot be understated on the educational journeys of all students. This theme occurred throughout the

interviews at both the macro level, society as a whole, and the micro level, local family unit. Students have so many positive and negative influences in their lives as they grow and develop. These influences and experiences have lasting developmental impacts on how they see themselves, what they believe they can obtain, and, ultimately, who they become. It reminds us that our young students are like sponges soaking up the world around them. We have to be mindful of the messages and actions we portray, as they can have lasting effects.

The students brought up various examples of how society labeled specific careers only for men and particularly how a woman's role is defined in the home as being a caretaker. They discussed the stereotypes that young girls are supposed to follow and how they were looked at differently or questioned because they chose to be a nontraditional student. Further, they spoke about how their families and friends questioned their decisions, not necessarily out of spite or meanness but rather concern for how they would be treated and seen. Nearly every student had a story about how they had to step into and through the gender roles and stereotypes for females on their way to their program of study. The interviews revealed a sense of duality in appreciating the students' lived experiences. On the one hand, there is great respect for how the students successfully stepped through levels of maltreatment and overcame the adversity of gender roles to begin their journey. On the other, there is a level of sadness in considering the potential of how many females have wanted to walk their own individualistically unique paths yet never realized their potential, never quite able to bloom fully.

### ***Exposure to Content Experience at a Young Age***

Exposure to content, knowledge, and experience at a young age can have a lasting, influential effect on the student and their path. A surprising theme that developed from the data was the number of students who mentioned being fascinated with the content or trade at a young

age, particularly citing previous experiences with family as influential. The power of firsthand experiences, particularly within the context and parameters of family members, can influence students to such a degree that they will choose to pursue a similar path regardless of the support of those around them. Ironically, it can be the same family members who provided the experiences who most loudly voiced their apprehensions and resistance to allowing the student to walk their journey. The takeaway was that the technology centers could not replicate positive, supportive experiences at a young age with their family members. Still, we can and do try to expose students of various ages to the trades and the required skill sets to help spark interest. If anything, this theme reinforces that to see an increase in nontraditional students, we must expose students at a young age to career pathways and try to get more conversations going on at home with their parents in hopes that more firsthand positive, supportive experiences occur.

### ***To Get More Give More***

To get more, we need to give more. This theme doesn't necessarily mean in fiscal terms, but acting with intentionality and focus as organizations, maximizing our resources to support and help those in need. The nontraditional students spoke of the immense influence of seeing females in the marketing efforts both externally, through advertisements and catalogs, and internally, through campus and program tours, where the potential students get their first in-person opportunity to see the program in action. Seeing students who look like them, in the various descriptors or identifications, allows for the visual reinforcement that their dreams and journeys are possible because someone like them is doing it.

The nontraditional students also spoke of the desire to have mentoring and support group opportunities with other nontraditional students across their campus to have a safe place to discuss their experiences. Furthermore, it was mentioned how beneficial it would be if the

technology centers could find external female nontraditional workers in their specific trades for mentoring and job shadowing opportunities. These intentional efforts to facilitate a sense of community for those who seek it are examples of demonstrating with action that the nontraditional students are valued and belong. Also, these actions could put into motion a domino effect within the local communities and economies where the technology centers represent more than workforce development to include community enrichment where all are welcomed, valued, and celebrated for their individuality and contributions to the collective good of all. All of these potential efforts to give more by the technology centers could immediately affect the recruitment and retention of nontraditional students.

### ***Binding Characteristic of Resiliency***

The nontraditional student who successfully enrolls and completes their program of study possesses a high level of resiliency. This theme stood out as all of the students interviewed shared various stories and experiences in which they had to step through the uncomfortable reality that they would be in the vast minority at best, most likely alone as a female in a male-dominated program of study that would ultimately lead to a male-dominated career pathway. They shared fears and concerns of being the only female in the program, worries of challenging the gender stereotypes within society, family, and friends, as well as overcoming self-doubts that they would have the capacity both mentally and physically to be successful in their endeavors. Their courage to step into the fray and push ahead, often as their only advocate, epitomizes resiliency and determination.



## Faculty and Staff Participant Information

**Table 11**

*Description of Faculty and Staff Participants*

<b>Faculty and Staff Participant</b>	<b>Position</b>	<b>Years of Experience in CTE</b>	<b>District</b>	<b>Geographic Location of District</b>
F & S 1	Workforce Development Coordinator	15	CVTC	Suburban/Rural
F & S 2	Counselor	16	CVTC	Suburban/Rural
F & S 3	Director of Counseling & Special Populations	9	MT	Urban
F & S 4	Non-Traditional Career Advisor	2	FT	Suburban/Urban
F & S 5	Counselor	16	FT	Suburban/Urban
F & S 6	Counselor	15	MNTC	Suburban
F & S 7	Counselor	10	MATC	Suburban/Rural
F & S 8	Instructor	8	MATC	Suburban/Rural

The study's faculty and staff participants (F & S) came from various backgrounds within the CTE system. Still, each had firsthand knowledge of working with nontraditional students in the traditionally male-dominated trade and industry programs of study. The participants were chosen based on their positional experience, superintendent recommendations, and my intentionality to obtain perspectives from various professionals in the field. The minimum participant requirements in the study were that a counselor would be chosen from each technology center who worked with the trade and industry programs and that all participants had firsthand working experience with nontraditional students. Overall, the eight individuals represent over 91 years of firsthand experience between the five metro area technology centers, averaging over 11 years of experience between them. A short description of each participant will

be provided for perspective and greater context from whom the data was obtained, such as for the nontraditional students.

### *F & S 1*

She was a Workforce Development Coordinator with over 15 years of experience in the CTE system. In her position, she worked with businesses of all sizes that needed training, organizational development, and coaching and served as a transitional figure between students and employers. While this would have been enough to include her in the study, I chose her precisely due to her unique background as a nontraditional figure in industry and the military and her passion for mentoring current nontraditional students. She has walked the walk of being a female in a man's world. As she said during our interview, "So from the time I got into college, from the time I actually got into career tech, it was all male-dominant environment." Some highlights of her career include joining the Army after college and becoming one of the first female paratroopers. From there, she worked at Boeing and Johnson Controls, an HVAC manufacturer, ultimately becoming one of the 1<sup>st</sup> female managers surrounded by men.

She expressed the difficulties of working a career in male-dominated trades but repeatedly said that she loved the challenge of it and would not have changed her path. She attributed her success to good leaders helping her grow by providing opportunities and mentoring and speaking passionately about using negative experiences and hardships as motivation. In particular, she mentioned negative interactions with her father regarding a woman's role, as early as age 14, motivating her throughout her life. She believed that to increase the nontraditional numbers and grow our workforce pool, we as a collective CareerTech system need to show through marketing and recruiting our success stories of women in the trades and support our current students in providing female professional mentors and support groups.

She was extremely passionate about this topic and served as a shining example of what perseverance and determination can do in one's life when faced with challenges.

### ***F & S 2***

She was a counselor with over 16 years of CTE experience. Her roles had been numerous, but ultimately, she served as the individual responsible for the recruitment, interviews, admissions, and continued enrollment assistance as a counselor for all students within the campus, particularly nontraditional students within the male-dominated programs of study. She represented a campus that primarily served rural students, presenting another perspective on the phenomenon of nontraditional students. She said, "So what you see with the non-trad is you see a person who's pretty determined." While discussing the nature of non-traditional students, she mentioned a few other common characteristics besides being determined, including that they knowingly are walking against society's norms, and often, they come from a family that exposed them to the trade at a young age, making the program less intimidating.

Also, she shared in her experience that a major factor in stopping females from enrolling is the negative peer pressure from their friends. Interestingly enough, for perspective on a more current trend, she mentioned, "And I think after Covid, I have seen it be even tighter where they stick with their friends and pick things just because of their friends. So there's a lot of that, that it's not necessarily what they wanted." Overall, she shared that, as one would have guessed, a nontraditional student is very rare, but when one enters a program, they are often successful.

### ***F & S 3***

She was the Director of Counseling and Special Populations for an urban-based technology center. She oversaw the counseling department, including five counselors and other staff members relating to the counseling and advisement cluster of the district. Her nine years in

CareerTech began as a counselor before transitioning into her current director role, in which she still performed counseling duties. Even with her director title, she actively recruited, interviewed, and enrolled all related students, particularly nontraditional students. Her experiences provide a unique perspective from a growing technology center in an urban environment with a diverse ethnic and socioeconomic population. For example, she said of her district, “We have a really large Latino population here. And I do think... there are still some gender stereotypes, and I think maybe sometimes there may be student interest, but their families discouraged that.”

One of the major takeaways from the interview was a theme that kept coming up that women had to prove themselves to gain the respect of male peers in their programs, whereas men may not have the same struggle when they walk into a program. The takeaway is noteworthy because it was a theme repeated by the students interviewed from the same district. It was not discussed as an overly negative position but rather as a reality that must be overcome for the student to succeed. It was explained through the lens of something that the students would face in the workplace, but they would begin building confidence and resiliency within the walls of the technology center. It was a conscious perspective that I appreciated in helping the students grow. She supported the district’s growing nontraditional student movement while providing numerous success stories and relevant viewpoints.

#### ***F & S 4***

She was the non-traditional career advisor within her district for the previous two years. While her experience had been limited in years, her position allowed her to dedicate her energy to working with all nontraditional students within the district. She described her role:

So, rather than doing the advising that our career counselors and advisors typically do, I am more focused on the recruitment and retention of our non-traditional students. So

that's going to be primarily, I work a lot with our women in STEM, our women in our T & I programs, our men in our pre-nursing and cosmetology programs. Those are the primary ones that I work with.

Her position is the only one of its kind in the state, dedicated to working with nontraditional students. The position was in place because the district was awarded a federal Carl Perkins grant for innovative recruiting and nontraditional student activities.

Through our conversation, she focused a lot on the historical gender roles and expectations of society as being the primary driving force of career pathways. She spoke of examples of various nontraditional students outside the study's focus of women in trade and industry (T&I), including men in nursing, women in STEM, etc. From this came one of the more interesting responses from the interviews in her explanation of some of the differences between nontraditional student categories, including their involvement during the recruiting cycle and while enrolled utilizing available resources. For example, she said:

So I have found that our women in STEM are very eager to participate because there are lots of resources out there for women in STEM... Women in our T&I programs have been a little resistant, at least our current students... I feel like I've received a little pushback from our women in our T&I programs, although, although they're very willing to recognize that they are the only ones, they know it.

While it was impressive that the technology center district took the initiative to create the position, one of the female students interviewed from the same district expressed little knowledge of or experience with what *F & S 4* could provide for them. It is my belief this was not a result of *F & S 4*'s incompetence or negligence but instead due to the reality that there was

only one position across the entire district to serve all nontraditional students in all their forms, plus the requirement of the position to be heavily involved in new student recruitment.

Overall, her passion and drive to serve the population were to be commended, especially in her efforts to extend the reach of the district out into the community to involve parents. For example, she helped develop and implement a “girls in stem” night where potential female students are invited with their families to an open house after-hours format to see the programs first-hand. The “Girls in STEM” event was run by the instructors and all of the current female students in the program, furthering the optics that females belonged in the program and that the potential students saw someone like themselves. She discussed plans to extend the same event format to other nontraditional areas.

#### ***F & S 5***

She was a counselor with 16 years of CTE experience. She had expressed the various roles she had participated in, all relating to general firsthand experiences with potential and current students. She was explicitly recommended for an interview due to her vast experience working as someone involved in the recruitment and intake of students at her campus, predominantly trade and industry in nature.

She was passionate about serving students and was proud of her ability to dig deeper with potential students to help guide them on their career journeys. She expressed how important it was to take the time to get to know the students individually and offer guidance based on their needs. She had several stories of nontraditional female student successes and failures but came back to the idea that the more involved she could be with the students during their time on campus, the better odds they would have for success. This related to and supports data pulled from the nontraditional student interviews in which they expressed a general desire to have a

mentor, group, or network to go to for support during their time on campus. Making the individual connection and knowing where to go for help is essential for all students, especially the potentially isolated.

One of the more interesting perspectives offered during the interview was her take on women choosing specific programs and how marketing efforts might have to be tweaked to think outside the box to pull a more significant population. Based on her experience and with supporting data from the nontraditional student interviews, most nontraditional students in the programs have had some form of previous experience with the content, mainly at home. For those potential female students who have grown up around the trades, this makes recruiting efforts easier because they know enough about the programs to realize they are capable, but what about those interested females with no experience? To address this question, she said, “Women are going to be attracted to things that, how does that make you feel and how did you impact others? And how did you help the community as a whole? And that's, that's going to trigger those emotions immediately.” This insight, appealing to emotions and a sense of community, might be a new direction previously unconsidered as a targeted marketing approach for the population.

### ***F & S 6***

She was a counselor with 15 years of various CTE experience. Her role was counselor over a dedicated trade and industry section of her technology center. Her technology center was a large suburban district with high demand. She described her role as “I am responsible for all current students' emotional wellbeing, physical well-being, and making sure that I'm helping them overcome any obstacles in coming or retaining the student. I'm also a part of the interview process for my particular area.” Beyond the general field of academic counseling, she continually related to these areas as essential roles she undertakes for the students. She exuded

pride in the fact that she was able to support and help all her students succeed, specifically the nontraditional population. When asked about her nontraditional population, it was apparent she had a good working relationship with the students by the quick manner in which she could pull names, programs, and stories of their struggles. She also bragged about the district's staff, saying, "Our instructors love to get a non-traditional student into their class." While all the counselors shared similar sentiments, her enthusiasm for how excited they were to enroll a nontraditional student stood out.

One of the more interesting takeaways from our interview was her response to a question on where she thought the nontraditional students' interest spurs came from to enroll. She stated, "I do believe for some of the younger generation, it's social media and TikTok and your Property Brothers, and what is it, Rehab Addict where they have women that are doing these projects as far as carpentry even is concerned." She mentioned several times that students would share their interest in watching TV shows about the content or through social media, particularly when they could follow a female working in the trade. Also, she shared several times that the most important thing for potential students to see during their recruitment was someone like themselves, particularly for a potential female student to see a female in the program they are interested in. These points related to previous data collected from the nontraditional students expressing how powerful it was if and when they could see females like themselves working in the field, being successful, and chasing their dreams. The students interviewed from her district also praised her and their instructors for creating a climate of acceptance and positivity.

### ***F & S 7***

She was the lone counselor at her largely rural technology center. In her ten years within CTE, she had various roles related to counseling. Specifically, she interviewed and conducted



most of the admissions process. While representing potentially the smallest district in the study, the technology center was in high demand within their communities. Even while wearing the many hats she had to wear, she was aware of their nontraditional population and knew many of their stories from memory. She was able to recall students from the past and discuss the paths they took after graduation.

One of the more memorable takeaways from the interview was when the conversation took a tangent, and she started glowingly talking about what it takes to be a female in a male-dominated program. She said, “I will say the females that I have seen over the years enrolled in non-traditional programs seem to be more bold and just determined to do what they want to do regardless of what anybody may think.” She spoke of the nontraditional student in such a way that you appreciated her genuine nature and respect for the student’s decisions. She could easily be called an advocate and supporter of all students regardless of their choices. The two students interviewed from the district spoke highly of the staff and had a spirit of ownership in their journey.

### ***F & S 8***

The final faculty and staff interview was conducted with a male welding instructor from a largely rural technology center. He had eight years of CTE experience as a teacher and had attended the welding program right out of high school. He had several years of industry experience before becoming an instructor. He was recommended for an interview by several staff members due to his intentional creation of an inclusive climate for female students in his programs. While his nontraditional numbers were no higher on average than any program from any other district, his intentionality and candidness in creating a safe space were to be commended. He said, “I create a culture there that they (male students) know to behave. It gives

a good opportunity. I think it's a great thing. It's kind of a weird one, maybe, but it opens up those conversations for sexual harassment in the workplace.” While this sounds targeted towards male students, he spoke about how it creates a conversation regarding how those behaviors could make others feel and, ultimately, the repercussions of such behavior. Also, he used it to inform all students, not just the females, of the proper procedures for addressing and reporting inappropriate behavior in the workplace.

Throughout the conversation, he spoke about how he holds all students to the same standards and does his best to prepare the students for the real-world workplace in things beyond being a good welder. He expressed on several occasions that while he holds them all to the same standard, he has to try and help develop them individually where needed to succeed. For example, he mentioned how some smaller-stature male and female students might struggle to lift heavier metal or equipment. When this is presented, he takes the time to teach them the necessary methods to work around the problem or address it accordingly, not get frustrated and quit, believing they are incapable. Nontraditional or not, this empathetic approach is essential to train a future workforce properly.

### **Faculty and Staff Participant Interview Protocol Responses**

The individualized protocol used during the faculty and staff interviews was broken into six sections (See Appendix B). Four sections were tasked with approaching the research questions directly and indirectly. These sections were called barriers, interest & inspiration, increasing participation, and, within the concluding section, the central research question itself. Intentionality was given in the design and drafting of the protocol to ensure the research questions were adequately addressed. Through coding and thematic development, this planning successfully provided data in and around the localized problem of practice and within the scope

of all research questions. Each section and the participant's responses will be discussed to understand the findings further.

### ***Barriers***

Central to the study was the question of what barriers prevent or discourage female students from enrolling in the traditionally male-dominated CTE programs of study. Within the tailored protocol, two separate questions were tasked with getting to the core of this question, specifically from those who have perspectives derived from numerous firsthand experiences with the students. The results of these interactions are a developed context of a larger scale than from the singular focus of an individual student, potentially providing rich insight into the phenomena.

The first question directly approached the concept of barriers by asking, *why is nontraditional participation so low? What are the leading factors or barriers holding back an increase in enrollment?* This question was designed to go directly to the heart of the problem and get insight into what is stopping students from enrolling. This is also one of the core research questions of the study. The top codes found through the data analysis are listed below in Table 12. While these codes do not capture the entirety of the perspectives or experiences of the interviewed faculty and staff members, they do paint a picture of the participant's perspectives and possible roadblocks for potential students.

**Table 12***Faculty and Staff Responses – Barriers*

<b>Code – Response</b>	<b># of F &amp; S out of 8</b>
Barriers: Lack of knowledge about career pathway opportunities: Even a possibility	8/8
Barriers – Unsupported at home – family & friends negative influence - Question Choice	6/8
Barriers: Potential Student Misconceptions: Be the only female in the program	5/8
Barriers: Historical Social and Cultural Norms – Gender roles: Afraid to socially take the leap	5/8
Barriers: Potential Student Misconceptions: Messy & Dangerous environment	3/8

What became apparent from the collected data on this question was that if a potential student had no prior experience with the content, they would generally lack knowledge about the program and career pathways that could follow. Because of this, potential students may not realize that a door even realistically exists to walk through for them to build a career. F & S 1 spoke about this big-picture misconception when she said, “I would think it's probably lack of introduction of those opportunities in the fields.” As simple as it sounds, when we have no knowledge or exposure to particular situations, for example, educational opportunities, we never get a chance to explore our interests, or worse, we let our imaginations run wild and doubt our capacity.

The faculty and staff participants spoke a lot about the principal barriers being focused under this umbrella of misinformation and misconception of the trades. This included fears about the physical requirements of the students (incapable), the classroom and shops being too

dangerous (impractical), a belief that females were not welcomed in both school and workplace (unwanted), and ultimately that it just wasn't for the student because they were female (gender expectations). F & S 4 spoke of this directly: "I think access is a huge issue, a huge barrier where students just don't have access to people that look like them in these non-traditional careers." Yet again, if they have not seen someone like themselves doing something, they may not believe it's a possibility.

Many of these misconceptions, unfortunately, begin at home. As the data analysis revealed, those closest to the students, often family and friends, are not preventing the gender roles and stereotypes from being expanded. F & S 2 spoke directly to this when she said, "First and foremost, you have a definite societal way that people look at careers, and they look at what a person is going to do." Further, F & S 3 spoke of the deeply interwoven cultural barriers that exist when she said, "I think sometimes also, I've spoken with students who have just the culture that they're from, their parents have told them they can't do certain programs." The trend of gender roles, stereotypes, and expectations not only tells individuals explicitly what they should be doing but often inadvertently tells them what they are not to do. F & S 7 expressed this sentiment when she said, "I go back to the thought of maybe just intimidation from on part of the female students that they're expected to fall into and conform to this particular role in life."

The second question within the Barriers section was, *have you encountered or witnessed negative persuasion or resistance of any kind to the recruitment, admission, or instruction of nontraditional students?* This question intended to try and view the problem through a lens of witnessed negative behavior toward the nontraditional population. The phrasing was done to leave a bit of ambiguity for the participant to discuss. Table 13 shows the findings of the question.

**Table 13**

*Faculty and Staff Responses- Negative motivations or influences*

<b>Code - Response</b>	<b># of F &amp; S out of 8</b>
Negative persuasion: No – actually, positive	4/8
Negative persuasion: No	3/8
Negative persuasion: Yes: At Sending School: Counselors	1/8

This particular question and resulting responses were quite telling. First, it was good to hear that those individuals who worked closest with the students had not witnessed or heard of negative behavior, and second, the results mirrored the nontraditional student’s results. This appears to be a consistent trend. When asked directly, 7 out of 8 participants, at a minimum, answered “No,” indicating a generally positive experience for the students historically, given the context of the participant’s experience. Four F & S participants went as far as to recall praise from nontraditional students for their experiences and support from the technology center or comments about how their districts welcomed the opportunity to work with the population. F & S 6 captured this sentiment when she said, “I will tell you from our end, our instructors love to get non-traditional students into their class.”

The lone “yes” to the question dealt with sending high school counselors potentially not taking the time to listen to the potential student’s interests fully. F & S 2 provided good insight into the question when she stated:

I've seen it at a few high schools where I don't think it's a purposeful thing. I think that some of those counselors just assume this student would never want to do this. And so they discount that just because they have a perception that they would only be in this or that female only or whatever. And I don't think it's something that they're mindful of. I don't think it's something they consciously are doing. I think it's just like I said, society

has a set of rules, I guess, that people are supposed to, it's just how you think about it. If it's a girl, she's going to want health careers instead of welding.

***Interest & Inspiration***

The interest & inspiration section of the protocol was a very insightful, intentional effort to address the second of the secondary research questions. The protocol was designed to gain insight from the experiences of faculty and staff who regularly work with nontraditional students who jumped from potential to current students. The section had two questions that produced findings helpful to answering the research question and better understanding my localized problem of practice.

The first question was asking the F & S, *is there a most popular program for nontraditional students within your district? Why do you think that is?* This question was intended to try and understand why students choose programs and if there was a consistent trend. The first part of the question is addressed in Table 14, with no actual statistically dominant program revealed. It appeared that program selection within the male-dominated trade and industry (T & I) programs had no real consistency, instead presented as random.

**Table 14**

*Faculty and Staff Responses – Interest & Inspiration: Most Popular Program*

<b>Code - Response</b>	<b># of F &amp; S out of 8</b>
Most Popular – Welding	2/8
Most Popular – Carpentry	2/8
Most Popular – Auto Service	2/8
Most Popular – Aviation	1/8
Most Popular – Unsure	1/8

The second part of the question, addressed in Table 15 below, also revealed randomness as to why a program would be considered the most popular. I found this series of questions and answers interesting as they yielded little applicable insight into what nontraditional students want to take and why in terms of mass popularity. The takeaway is that there isn't a most popular program across technology centers for nontraditional students, and like their male counterparts, they have their individualistic interests, goals, and aspirations guiding them on their journey.

**Table 15**

*Faculty and Staff Responses – Interest & Inspiration: Most Popular: Why*

<b>Code - Response</b>	<b># of F &amp; S out of 8</b>
Most Popular: Why: Familiarity with Program/Content	2/8
Most Popular: Why: Not sure	2/8
Most Popular: Why – Different opportunities within the career path	1/8
Most Popular: Why – Less physically demanding	1/8
Most Popular: Why: Trends with careers in general and people wanting to flip houses.	1/8
Most Popular: High wages	1/8

The second question of the interest and inspiration section is, *where did the interest, inspiration, or idea of pursuing a nontraditional path originate for women who enter their programs of study? Biggest factor?* This particular question aimed at gaining additional perspective into why current and former students chose their program of study. In other words, what was the motivating factor that drew a student into a program? The question's intent was not necessarily to pull from a wide swath of interpretation of all trade and industry programs but instead focus on known examples of current and former students who successfully crossed the threshold from being prospective students. The previous question looked at what and why was



most popular. This question was interested in discovering the inspiration for students who enrolled and participated. Table 16 reveals the findings.

**Table 16**

*Faculty and Staff Responses – Interest & Inspiration: Where from?*

<b>Code - Response</b>	<b># of F &amp; S out of 8</b>
Interest & Inspiration: Mentor from the field: Family/Friend	7/8
Interest & Inspiration: Social media/TV Influence	1/8
Interest & Inspiration: High wages	1/8
Interest & Inspiration: Program looked interesting	1/8

The responses to this question were among the most insightful. Seven out of eight participants gave testimony to prior experience with the content or curriculum of the program, particularly with family, as being the most significant factor or reason behind a student’s interest and choice to enroll in their program. F & S 8 said, “I’ve had a couple that they’ve had family members that done it, and so they thought it’d be a good idea.” F & S 5 shared the following on the question, “So usually somebody in their life has either had something in that field, somebody they connected to or they felt empowered by was in that field.” This was a significant theme in the conversation on where interest originates from for students who choose to enroll.

While only tagged once for a code, F & S 7 mentioned the pull of both social media and high wages as reasons she has seen students choose to enroll. She stated, “I would say probably just financial reasons. Money. They tend to be programs where you can make a good living.” What makes these findings so interesting is that it reinforces the power of influence from family and friends on a young person. While the data has revealed that the influence can be detrimental from family and friends in the reinforcement of gender roles, resulting in negative persuasion to

enroll, it has also revealed that the power of positive reinforcing influence that spurred genuine interest in a topic or subject can, at times, be strong enough to overcome the negative persuasion. What also makes these findings interesting is the other interpretation of the results, being that most of the known students who chose to enroll did so due to the influence of someone close to them, typically at a young age. So, what about the overwhelming majority of young females who have no opportunities for exposure to the trades and pathways? What can the technology centers do to reach these students?

### ***Increasing Participation***

The increasing participation protocol section attempted to investigate and address the third secondary research question directly: *What can be done to increase the equitable enrollment figures?* This question was at the heart of the purpose of the study and central to helping understand the localized problem of practice. The first question of the increasing participation section was, *would you describe the strategy within your technology center district for improving or increasing nontraditional student participation within your programs of study? Is it working – why or why not?* This question intended to get a firsthand account from the most directly involved stakeholders of what the technology center districts were doing to address the population and their needs. Digging deeper, the intent was to try and establish what was going on inside the districts, not necessarily the publicized words but rather the actions being put forth. Table 17 shows the significant coded findings from the question.

**Table 17**

*Faculty and Staff Responses – Increasing Participation: Strategy?*

<b>Code - Response</b>	<b># of F &amp; S out of 8</b>
Strategy: Unsure: But needs improved	3/8
Strategy: Not defined – But intentional usage of nontrad students in marketing/recruiting	2/8
Strategy: Yes and no: Have a nontrad advisor	2/8
Strategy: Yes: Intentional usage of nontrade students in marketing/recruiting	1/8

While the responses varied on this question, a theme would emerge: a centralized plan targeted at attracting and retaining nontraditional students was not clearly defined nor strategically implemented across any of the districts. All participants would speak of their district’s good intentions and supportive nature but would stop short of calling their efforts highly effective in their delivery. F & S 4, the only nontraditional career advisor specialist in the CareerTech system, said when asked if they had a strategy and if it was working responded, “Yes and no, as with most things...It has been really challenging because there just are not resources out there to provide students with or to provide the correct recruitment materials.” Throughout her response, she spoke of successes in particular areas but also highlighted the struggles of others, for example, within the trades, the subject of this study. Given the uniqueness of her role, the takeaway was that, yes, a generic strategy was in place for her district, in particular, because of the formal requirements of her position as a specialized recruiter and advisor. Still, given the size and scope of her responsibility, she, self admittedly, would be primarily drawn to the more receptive and popular nontraditional student needs, such as girls in STEM or males in nursing. Because of this, it could be said that a hard-fast strategy to attract females to the nontraditional

trade and industry programs within her district was not clearly defined or implemented with fidelity.

Many of the faculty and staff participants commented on the use of nontraditional students in the marketing and recruiting efforts across their districts. Several noted that they saw females in the recruiting literature portraying them as nontraditional students in the trade programs. F & S 3 said of her district's new marketing director, "She's made an effort to feature women and non-traditional programs. I think even on our website, if you look at it, there's a picture that has students from each of those programs." Also, it was mentioned in several responses that female students, when available, were chosen to serve as recruiters, but again, nothing formal was in place as a strategy. Furthermore, uncertainty arose when asked if they believed it was part of an intentional strategy to increase nontraditional numbers. F & S 7 said, "Yeah, we really don't have a targeted approach...It just really falls on whatever students are interested in." Ultimately, it could be concluded that while all districts appear to be operating with good intentions, utilizing females in recruiting and marketing and speaking glowingly about how successful females are in their trade programs, a formalized targeted approach was generally lacking.

The second question of the increasing participation section was, *what should be done by the technology center districts to help increase the nontraditional student population?* This question was an attempt to capture another angle on how to increase participation from the first-hand participants. It also produced interesting findings in that while no large-scale formalized plans were revealed in targeted recruitment from the previous question, the most recommended means to help increase participation were already being done by almost every district, which was to include females in marketing and recruiting efforts for the trade programs. I believe this

question and the responses obtained could help build a formalized plan to help increase enrollment. Table 18 captures the responses.

**Table 18**

*Faculty and Staff Responses – Increasing Participation: Recruitment Ideas?*

<b>Code - Response</b>	<b># of F &amp; S out of 8</b>
Increasing Participation: Recruitment idea: see females in marketing	7/8
Increasing Participation: Recruitment idea: see other females in program	6/8
Increasing Participation: Informing instructors more about nontrad recruiting	2/8
Increasing Participation: Firsthand experience in the classroom for potential students	1/8
Increasing Participation: Earlier intentional recruitment for nontrads: elementary and middle	1/8
Increasing Participation: Involved families in the recruitment	1/8

The data showed that nearly every faculty and staff member believed that to improve nontraditional numbers, they must show females in marketing efforts and have females present in the programs when the students take tours. This theme repeated throughout the interviews in that students feel more comfortable and are further open to a nontraditional pathway when they see other similarly situated students currently in action. It is as though it presents itself as a viable, obtainable option for their journey. F & S 3 stated, “I think, again, just making sure when you're doing marketing and social, you're featuring those students so that maybe there's someone out there that can connect and say, ah, that's someone that looks like me or has a similar experience.” F & S 5 similarity stated, “For them to just walk by a program and see females in there, that alone is huge.” F & S 2 captured the overall sentiment of the need for relatability for students when she said, “If you have a non-traditional person talking to them about it, it doesn't seem as

farfetched.” These three examples capture the necessity and power of having students tell their stories and embracing the individual’s individuality.

While much of the focus of the responses to this question was dedicated to the power of seeing other nontraditional students for recruitment, it is also essential to briefly speak on the additional findings as they can be excellent ideas. Providing firsthand experiences for students on tours of the programs can be a powerful recruiting tool. Yet again, by allowing students to try something for themselves, they can determine if it’s something they like and, more importantly, if it’s something they believe they can do. In other words, if a student can pick up a drill, torch, or wrench and realize they can operate it, it makes the program and pathway obtainable and achievable, increasing the likelihood of enrollment. Further, an exciting idea for recruiting came from F & S 5 when she stated, “It’s going to take reaching outside your comfort zone a little bit, but reaching out to the community and finding those things that may be specifically in your demographic area.” The conversation around this statement translates to involving families and local communities in the recruiting cycle, letting the family and friends see the facilities, visiting with the instructors, and being exposed to the process to gain confidence in their daughters’ pathway choices. While only mentioned once, this data point should be seriously considered for any formalized plan to help increase enrollment of nontraditional students, regardless of program or cluster.

### ***Central Research Question – Faculty & Staff Responses***

Towards the end of the interview protocol, tucked away in the concluding section, was the central research question. The central research question was, *why do we have such an underrepresentation of women in our CTE trade and industry programs?* The decision to include the central research question verbatim at the end of the interview allowed the faculty & staff

participants to exercise their general thoughts on and around the topic to develop through the conversational interaction approach. Most responses reflected this with thoughtful recollections from previous questions, yet some pulled more of their experiences into the conversation. The following are not all faculty & staff participants' responses to the question. Instead, they represent a scaled-down theme of each.

F & S 1 once again spoke about traditional gender roles and societal expectations when she answered, "I'm going to have to go back way back. I think it's called history. I think it's because tradition & history, not supported and not introduced to those individuals." F & S 2 expressed similar sentiments when she stated, "It's just society and expectations, and you know, you would think we would be past that as far as what a person can do. I mean, if you're able to do that thing, you should be able to do it." Interestingly enough, F& S 3 continued on the trend of social expectations when she answered, "I mean, that is a difficult question... there are a number of factors. I think it's just what's ingrained in society and the populations that we serve. Just different cultures." Her response highlighted another criteria to consider: The localized cultural differences and expectations between genders and ethnic or racial groups. While the intent of this study was not to distinguish such differences, an acknowledgment should be given serious consideration as it does relate to localized district-level impact. In short, not only are there different social expectations between genders, but also, to some degree, between racial and ethnic subgroups. If nothing else, this highlights yet again the complexity of social issues and order, particularly as it intertwines within the public forum of education.

F & S 4 answered, "Wow. That's a huge question. There are so many different issues. Again, those generational gender expectations make a huge difference... I feel like we as a society don't do a great job of navigating conversations about gender in the workforce." F & S 5

continued the gender expectation trend when she stated, “We're in a complicated time, I think, in society where everybody has an opinion and everybody wants to share their opinion... And so I just wish we would kind of be more open.” As an additional note to F & S 5’s response, she also spoke about the interrelated nature and power of influence of instructors concerning gender and race. She shared examples and experiences working with nontraditional and minority instructors and the resulting positive increases in similarly situated student enrollment. In short, she mentioned that in her experience, for example, if they had an African-American instructor and were involved in recruiting, they would see increased interest from African-American students. She also shared that the same had occurred with a female trade and industry instructor as it related to female students.

F & S 6 acknowledged the role of gender expectations but also presented a couple of other explanations. She answered, “I do wonder about interest, just internal interest in general. I do think a lot of times, even in younger adults, it seems like we're struggling to even have an idea of what they want to do for the rest of their life.” While one of the study’s assumptions was the students' general interest in enrolling and participating, her response raises questions about exposure to the content in general. Positioned differently, how would a student know if they are interested if they have never had exposure to a pathway? Her second point was, “I also think that if they don't see it, they're not going to picture themselves in those positions... And I do think that they will assume that that is not a proper placement for themselves.”

F & S 7 again returned to her conversation about gender roles and expectations when she answered:



I go back to the thought of maybe just intimidation from on part of the female students that they're expected to fall into and conform to this particular role in life. And a lot of them are just probably scared to venture out into that.

F & S 8 added perspective from his welding instructor position and insight into why so few nontraditional students entered when he offered, "I think that they don't always see that there's a female student in there, so they don't even consider it. And here's the other big thing, it's dirty, it's nasty all the time." He took time to clarify this statement, not trying to cast stereotypes but stating that peer influence is a significant factor in enrollment and that interested female students might get negative persuasion from friends saying how dangerous and dirty the shop environment can be. The result is that the potential student chooses not to go against their friends and peer pressure. He also went on to explain how he believes there's a lack of interest in females in welding because they may not understand all the opportunities available in the field.

### **Faculty and Staff Participant Thematic Findings**

The goal of the faculty and staff interviews was to gain firsthand insight into the phenomenon from those who work closest with nontraditional students. Their experiences provide a perspective beyond that of the singularly focused existence of the student to include layers of interactions and context. The faculty and staff participants represent a variety of positionally experienced educators with over 91 combined years of CTE experience from five of the major Oklahoma City metro area technology centers. They represent professionals from urban to rural communities and everything in between. Through these differences, themes would emerge, uniting them and providing context for the study. From the coding of the data, three particular themes stood out: The effect of gender roles, lack of knowledge of the program and

pathway, and mentors matter. The themes discovered from the faculty and staff interviews will be discussed in the following sections.

### *Effect of Gender Roles*

A resounding theme took hold from the interviews following the coding and analysis of the data: Cultural and social norms, in particular, the effect and impact of gender roles and expectations on young females in choosing a career is firmly in place and a significant factor on enrollment. The two largest classifications of coded findings include a lack of support from family and friends and general gender role expectations preventing a student from socially taking a leap into a career pathway. Through not just years but generations of culturally embedded reinforcement, particularly within the family unit, gender roles are well established. They have lasting impacts on how individuals, both male and female, see themselves and, ultimately, on who they can become. This results in a continuous cycle of disproportionate career pathway exposure, enrollment, and participation.

The interview data collected from the faculty and staff reinforce that these gender stereotypes and roles are still prevalent, as all eight interviewed faculty and staff participants expressed versions of this theme. Even before the final question within the protocol, which was the study's central research question, all participants spoke on the influence of gender roles preventing females from pursuing a nontraditional path. When finally asked the central research question of why we have so few females in the trade and industry programs, all eight of the faculty and staff members discussed ideas once again within the theme. The participants spoke of the influence and control of historic social gender roles concerning potential students. Generally speaking, it was conveyed that female students often don't want to step outside their comfort

zone and go against the social norms of their friends and family, especially when negative persuasion is applied.

### ***Lack of Knowledge of the Program and Pathway***

One of the major themes that emerged from the data analysis of the faculty and staff interviews was the overall lack of knowledge of potential female students of programs and pathways. Within this theme are several large subcategories of coded findings that consist of a general misunderstanding or misconceptions about what and how programs operate and the realities of the instructional environment and workplace. The results of the data analysis lend themselves to a theme that a deficiency in enrollment, amongst other variables, is largely impacted by the lack of understanding and knowledge that all students are welcomed, are capable, and can be successful both in the classroom setting and workplace environment. As is the case for this study, many of the themes intertwine and compound on one another, such as the impact of gender roles on establishing and reinforcing a lack of knowledge of pathways through generations because of a lack of exposure.

This theme started to emerge in the expression of several faculty and staff members on potential students sharing their fears of being the only female in the program, therefore not choosing to attend recruiting events or enroll. While it is entirely possible that they could be the only female, most of the examples by the faculty and staff were that if the potential student had only seen their classroom and shop in person, they would have realized there were a few other females. Another heavily discussed topic by faculty and staff was that of potential students fearing the classroom and shop as too dangerous, messy, or hot for them; therefore, they chose not to take a tour or enroll. The reality is that the shops can be dangerous, hot, and messy, but

without seeing the space in person, an inaccurate vision is placed in the potential student's head, resulting in incomplete decision-making.

One of the study's more surprising and bewildering findings comes from the lack of knowledge theme: females aren't allowed or capable of participating in specific programs. Throughout the data analysis review, nearly every individual interviewed expressed experiences and perspectives that female students, who had never had previous experience with the content, often believed they were physically or mentally incapable of completing a program or not allowed to enroll under official restrictions. Upon further conversation, much of the student's misconceptions are perpetuated by the fact that they may have never seen a female welder or mechanic, therefore never believing it to be a possibility. All eight participants expressed the necessity or need for potential students to see others like themselves through intentional marketing campaigns and recruiting efforts to combat the misconceptions. Several participants told stories of current or previous students who were positively impacted during their recruitment by seeing other females either in the class, on a recruiting visit, or through a marketing campaign that showed a female in the trades. This is a significant takeaway from the study: Intentionally focusing recruiting efforts to embrace inclusionary messages for all genders and backgrounds can positively affect enrollment.

### ***Mentors Matter***

Another theme emerged from that data that was easy to understand but difficult to remedy. Seven of the eight faculty and staff participants answered that the most significant factor causing the nontraditional students to enroll was influence from mentors in their lives, either family or friends, who previously exposed the students to the trade in some fashion. The lone participant to answer differently, F & S 7, credited high wages first but ultimately discussed the

influence of having been exposed by family members in learning about wages. From this, you could reasonably argue that all faculty and staff participants signaled mentors, through family and friends, as the most significant factor influencing nontraditional student initial interest and, ultimately, enrollment.

Why does this deserve to be a stand-alone theme pulled from the data? Because if the data tells us mentors matter to that degree, we must pay attention and provide students with all the equitable resources we can afford. The reality of the findings states that for most nontraditional students who chose to enroll and begin their journey, the largest source of inspiration has essentially been instilled before ever crossing paths with the technology centers. As a system, we must exist in the duality of accepting that we cannot replace years of positive influence from mentors while also trying to reach those with no mentors by way of embracing and focusing on the reality that all students want to feel welcomed and safe in an environment where they can exercise their individuality and grow. With this in mind, we must create a visibly inclusive environment through our marketing and recruiting efforts so that someone with no previous mentors can identify with others like themselves, feel comfortable enough to explore and be supported to grow in their endeavors.

### **Thematic Results of the Study**

After 18 interviews and countless lines of data coded and analyzed, a few themes emerged that crossed over all participants to be considered as thematic results of the study. These themes have been dissected and reviewed throughout the chapter in various sections, including the individual participants' introduction, a specific breakdown of protocol results, and a categorical thematic discussion from each participant group. For the sake of this particular section, a discussion will be of the overarching thematic results of the study to include the

perspective of nontraditional students, faculty, and staff. The themes include the impact of gender roles and stereotypes, the reality that mentors, representation, and support matter, and the binding characteristic of resiliency.

### ***The Impact of Gender Roles and Stereotypes***

The study's most definitive data-supported thematic finding is that social and cultural gender roles and stereotypes negatively influence the enrollment of females into the traditionally male-dominated trade and industry programs of study. Repeated over and over through various codes in the data, the impact of gender roles plays a heavy part in the recruitment and enrollment of students. Generally speaking, 16 of the 18 interview participants listed gender role concerns as the most significant barrier for potential students to walk the nontraditional pathway. These gender role concerns involved, amongst others, how it would look for a female to enter a male's world or how they would be perceived as an individual if they enrolled. Further, 16 of 18 participants described overall concerns of being the only female in the program or being generally unwelcomed as a female in a male-dominated program as a significant barrier for potential students to enroll. These two data points alone point to a high statistical probability as causation that gender roles are highly influential in the process.

Going one step further, if you consider that 13 of the 18 participants cited examples of feeling unsupported or negatively persuaded by family and friends to enroll in a nontraditional program, you further grasp that gender roles are firmly in place within our society and culturally ingrained. The interviews did reveal an interesting perspective on this particular data for further consideration. While the initial perception of the findings might be that family and friends want to control the student's choices, upon diving in, it became more apparent that, at times, the negativity was rooted in both misconceptions about the pathways and, potentially, the most

critical element, a general fear that by allowing their girls to enroll, they would be allowing them to be put into dangerous or unsavory positions. I must make this distinction that, from the participants themselves, much of the initial lack of family and friend support came from a place of love or concern. For clarity and to best capture the entirety of the findings, there were examples of actions reinforcing negative gender roles and stereotyping behaviors by family and friends not necessarily rooted in apparent loving, caring behavior. As a parent, I understand the duality of wanting my children to be happy and pursue their individualistic dreams while also trying to guide and protect them from harm's way or, at the very minimum, trying not to set them up for a difficult life journey.

Considering these three data points, all participants categorically implied and shared experiences of how gender roles and stereotypes have played a negative part in nontraditional student participation within the definitions of the study. These elements are often intertwined and interconnected between variables, making definitively labeling the most significant factor very difficult. While I believe, supported by interviews with the participants, that much of the current pressure of conforming to gender roles and stereotypes derives from not necessarily a place of restrictive, authoritarian control but rather love and concern for the student's well-being, the reality remains the same, that gender roles and stereotypes affect participation patterns for females in the male-dominated trades. Social pressures to conform are often strong enough to overpower individualistic interests, resulting in repeated patterns of low enrollment.

### ***The Reality that Mentors, Representation, and Support matter***

Some of the more intriguing findings of the study come from within the theme that mentors, representation, and support matter. It is fascinating because the data reveals actionable items that technology center districts could enact to help increase and maintain nontraditional

populations while shedding light on realities beyond their control. The first significant finding is that 16 of the 18 participants credit interest or inspiration developing for the career pathway of nontraditional students through prior exposure from a mentor. This mentor was largely credited with being a family member, such as a dad, brother, or uncle, but a family friend was also stated. This early exposure to content at a young age allowed them to develop an interest and often receive hands-on exposure to affirm they have the capacity for success. Fascinatingly, as confirmed through the interviews, these mentors were often the students' first negative influencers by questioning their choices because of gender expectations. Balancing between societal gender roles, concern for safety and lifestyle, and helping young people grow into themselves captures the conflict for these mentors. Regardless, the influence, potentially both positive and negative, of those around young people serving as mentors as they are growing, developing, and evolving cannot be understated.

Of all the data reviewed, potentially the most actionable by technology center districts is to understand the impact of representation on all students, particularly nontraditional students deciding to pursue a career in a male-dominated pathway. It is powerful for people to see others like themselves doing the thing they want to do. Through the interviews, this was a reoccurring theme that potential students are heavily inspired or reinforced in their decisions by seeing other females in the trades they want to attend. Of 18 participants, 14 said that to increase the population's participation, we need to see females in marketing efforts demonstrating successful enrollment and program involvement. Further, 10 of the 18 participants said that during recruitment efforts, the most powerful tool for female students would be to see other females in the program actively participating. Other codes around increasing participation include exposing nontraditional students to the idea that they have the capacity for success and are welcome. As



technology center districts, these intentional efforts could be worthwhile in growing your culture to become more inclusive and inviting, only increasing the talent pool for applicants.

Within this particular theme, one of the major takeaways was that districts need to provide ongoing support and mentoring of students to increase nontraditional participation and solidify student retention as they navigate into, during, and out of their programs. While this might appear at first glance to be only semi-related to the previously discussed two points of the theme, it aligns with a consistent message: Our potential and current students want to feel supported in their journey to becoming who they are meant to be. This holistic approach of looking at the lifecycle of the nontraditional student before they attend, during their program, and after while in the workplace includes the realization that for real change to occur within society accepting their choices, we must first create a culture within our organizations where equitable support exists to help their growth.

### ***Binding Characteristic of Resiliency***

One of the more inspiring themes from the data was the unifying characteristics of resiliency and determination that the successful nontraditional student must possess who choose to walk against the societally instilled gender roles and against negative persuasion to choose a career path for themselves. Both participant categories spoke about what it takes to make it as a female in a male-dominated world. From these stories and experiences and an appreciation of these characteristics, one can understand why so many of these students become successful in the classroom and, ultimately, in life. Do these young ladies' struggles and hardships form such resiliency and determination, or are they born with it and walk their own path regardless of outside forces? This contemplation is one of the reasons I believed it warranted such prominence in the discussion. To recruit more nontraditional students, we must understand those who make

it. One thing is sure: Those who have become successful students who complete a male-dominated program exhibit characteristics that will follow with them and only make those around them better.

## **Summary**

Dedicated intentionality and focus were given to capture best the sentiment and essence of the lived experiences of all participants. But as is within qualitative research, the results could be slightly askew from its purest form of representation. Acknowledgment of this is not to cast doubt but rather to instill confidence that this matter has been of grave seriousness to me, to best represent the voices and lived experiences of all participants. A strict protocol was followed for uniformity. All recordings were digitally captured and transcribed with the latest transcription software. All transcriptions were checked against the recordings for accuracy, ensuring the participant's voice was captured correctly. All transcriptions were reviewed, coded twice, and compared to ensure proper coding processing. Themes were allowed to organically grow and develop from the data independent of participant or category to capture the participant's experience best. Every attempt was made to textually represent the findings to accurately convey the participant's experiences yet navigate the academic requirements for such expression with readability. Further, practicing reflexivity has been at my conscious forefront throughout the capturing, reviewing, and analysis of data.

The study aimed to better understand the localized problem of practice through valid research, ultimately equipping me with improved insight and tools to serve. Several themes emerged from the completed practices and processes, serving as tools that will help me be a better scholar-practitioner. The data revealed that long-standing culturally reinforced gender roles and stereotypes are still in practice today, directly affecting career planning options across

multiple pathways, including females in the trades, as was the subject of the study. As was reported throughout the interviews, successful students often experienced positive mentorship or exposure at a young age, helping spur the interest and inspiration to walk a path of their own.

While acknowledging that not every potential student may have had positive experiences with family and friends at a young age, the data suggests that one of the most important things we can do, as a CareerTech system, is to provide a proper representation of females through marketing and recruiting efforts in the nontraditional pathways. Also, once on campus, the districts can help support nontraditional students by creating support groups or mentorship programs where they can feel involved and valued. This intentionality can evolve into a culture of inclusion within the programs, where all students can be welcomed and challenged to grow into their whole selves. Above all, the data revealed that successful nontraditional students often exhibit a high level of resiliency and determination in their endeavors, potentially representing some of the most successful and talented students within the programs. These students are some of the district's brightest and represent high-value additions to the local economies.

## Chapter 5: Conclusions, Implications, and Recommendations

The purpose of this study is to gain a deeper understanding and appreciation of the phenomena surrounding nontraditional students within traditional CTE trade and industry programs of study to discover practical and real-world applicable and equitable actions that can be taken to provide improved equalitarian opportunities. The research design, general inductive qualitative methodology, was intentionally chosen to accomplish this purpose best. The method allowed me to gain firsthand insight and knowledge of the phenomena from the nontraditional students and other directly involved CTE faculty and staff. Creswell & Creswell (2018) frame my reasoning for choosing this design by stating, “the goal of the research is to rely as much as possible on the participants’ views of the situation being studied” (p. 8). This approach enables obtaining data from participants in its most authentic objective state, the natural setting where the phenomenon exists (Creswell & Creswell, 2018). Maxwell (2013) further reinforces this by stating, “participants have far more experience with the things you are studying than you do, and may have important insights into what is going on that you can miss if you don’t take their theories seriously” (p. 52).

From within this philosophical framing and positionality, the study’s central research question is *why do we have such an underrepresentation of women in our CTE trade and industry programs?* Independent interview protocols were intentionally designed for both categories of participants to approach this question from multiple angles, allowing me to examine the phenomena better. Secondary questions were established to help further the breadth and width of potential findings in and around the phenomena, resulting in more robust research. The three additional secondary research questions are:

- What barriers exist for women entering traditionally male-dominated trade and industry programs?
- Where did the interest, inspiration, or idea of pursuing a nontraditional path originate for women who enter their programs of study?
- What can be done to increase the equitable enrollment figures?

### **Review of the Study**

A total of 10 nontraditional students and eight CTE faculty and staff were interviewed one-on-one and recorded, with signed consent, using a Zoom audio recorder. All eighteen interviews were transcribed using REV transcription software, followed by manual accuracy verification by listening and checking for errors. Upon the completion of all interviews and after verifying accurate transcripts, the coding process would begin.

All transcripts were manually coded line by line. Following a week away from the data, all transcripts would be reviewed and manually coded line by line again to ensure the most accurate representation of the study participants' experiences and thoughts. The intentional effort to manually code all transcripts twice was made to ensure the data's accurate development. The result would be first, second, and third-level codes. Once all coding was completed, a developed list of codes would begin to amass. From these and within contextual consideration of the protocols, themes began emerging from the data. The resulting thematic developments provided new insight and a better understanding of the phenomena, helping to sharpen the focus on the purpose of the study and directly addressing the research questions.

### **Review of Major Findings**

After 18 semi-structured conversational interviews utilizing tailored protocols for the two research participant categories and countless lines of data coded and analyzed, three themes

emerged that would help paint a picture of the lived experiences of the nontraditional students. These themes have been dissected and reviewed in-depth in the previous chapter through various sections, including the individual participants' introductions, a specific breakdown of protocol results, and a categorical thematic discussion within each participant group. The themes include the impact of gender roles and stereotypes, the reality that mentors, representation, and support matter, and the binding characteristics of resiliency.

### ***The Impact of Gender Roles and Stereotypes***

The study's most definitive data-supported thematic finding is that social and cultural gender roles and stereotypes negatively influence the enrollment of females into the traditionally male-dominated trade and industry programs of study. Repeated over and over through various codes in the data, the impact of gender roles and historic cultural customs plays a heavy part in the recruitment and enrollment of students. Examples include, but are not limited to, women not being capable, welcomed, or allowed in the programs or workforce. All participants categorically implied and shared experiences of how gender roles and stereotypes have negatively impacted nontraditional student participation within the definitions of the study. These gender roles and stereotypes are often intertwined and interconnected between variables, making definitively labeling the most significant influencing factor very difficult. These gender roles and cultural customs represent a barrier that female students are often reserved from crossing.

Interestingly enough from the study, it was revealed through and supported by interviews with the participants, that much of the current pressure of conforming to gender roles and stereotypes, in particular from family and friends, derives not necessarily from a place of restrictive, authoritarian control but rather from love and concern for the student's well-being. This contradictory duality of restrictive control being rationalized behind the veil of love

represents how complex this topic can be for the potential nontraditional student. Regardless, the reality remains the same: Gender roles and stereotypes affect the participation patterns of females in male-dominated trades. Social pressures to conform are often strong enough to overpower individualistic interests, resulting in repeated patterns of low enrollment.

***The Reality that Mentors, Representation, and Support Matter***

Some of the more intriguing findings of the study come from within this theme because the data revealed both relatively easy actionable items that the technology center districts could enact while presenting discoveries beyond anything they can influence. A significant finding that is essentially out of the control of the districts is that most of the participants credit their program interest or inspiration developing and solidifying at a young age through exposure from a mentor, predominantly family members. While recent recruiting efforts within the CareerTech system target introducing career pathways and opportunities to younger students as early as elementary age, there is no replacement for the influence of family and friends at a young age that introduces and fosters their interests, particularly within these nontraditional pathways. At a young age, these mentorships reveal and confirm the student's capacity while imprinting a correlative relationship between their mentor and the desired pathway. This is a powerful process, difficult to replicate. For note, it was reported that often these mentors were responsible for affirming the previously mentioned gender roles or stereotypes. For example, they would expose the young female to the particular content or hands-on processes, teach them, and offer praise, but ultimately tell them it was no place for a girl or that they were meant for other traditional female career pathways.

Of all the data reviewed, potentially the most actionable by technology center districts is to understand the impact of visual representation through marketing and recruiting efforts on all

students, particularly nontraditional students deciding to pursue a career in a male-dominated pathway. It is powerful for people to see others like themselves doing the thing they want to do. Through the interviews, this was a reoccurring theme that potential students are heavily inspired or reinforced in their decisions by seeing other females in the trades they want to attend. Further within this particular theme, one of the major takeaways was that districts need to provide ongoing equitable support, counseling, and mentoring of nontraditional students to increase participation and solidify student retention as they navigate into, during, and out of their programs. The findings within this theme provide insight into a holistic approach to looking at the lifecycle of the nontraditional students before they attend, during their program, and as they transition into the workplace and life.

### ***Binding Characteristic of Resiliency***

Having had previous professional experience working with the study's targeted population, female students in male-dominated trade and industry programs, I greatly respect their endeavors. From within this positionality, however, a theme would develop from the earliest stages of data collection that stood out. Of the themes, none were more apparent than the binding characteristics of determination and resiliency. No matter the program, technology center, or instructor, the successful nontraditional student must possess a high level of these characteristics, plus more, to effectively navigate against the societally instilled gender roles, cultural customs, and ever-present negative influencers. Throughout the collection and analysis of the data, all participants expressed unique stories, experiences, and perspectives that provided a unifying narrative about what it takes to make it as a female in a male-dominated world: Grit, determination, resiliency, and toughness, to name a few.



The decision to include this theme in the overall findings is not just to shine a positive, appreciative light on a population but, as a result of the study, to present further awareness of who we are serving. This being considered, further questions arose through the data collection and analysis. For the young ladies, do the struggles and hardships of navigating all the negative energy form such resiliency and determination? Or, are the students naturally born with it and walk their own path regardless of outside forces and pressure? This is more a question of nature vs. nurture, a much more extensive discussion than we can answer in this study. Still, to recruit and retain more nontraditional students, we must attempt to understand whom we serve, paying particular attention to those who make it and why to pick up on ways to help others. One thing is sure, those who have become successful students who complete a male-dominated program exhibit all of the discussed characteristics, which will help them forge a unique path forward and inspire others to follow.

**Central research question discussion: Why such an underrepresentation?**

The central research question is *why do we have such an underrepresentation of women in our CTE trade and industry programs?* It was designed as an intentionally broad-based inquiry, where the research and resulting data could help shape the focus of the study as it naturally evolved. As the focus of the study, the central research question served as a guiding point to examine the localized problem of practice and lead qualitative methodological approaches to understand the phenomena better. At the end of both interview protocols, the question was asked verbatim to all participants. The previous chapter, which discussed the research results and analysis, took an in-depth approach to looking at this question from multiple perspectives. However, for the sake of readability, a synthesized condensed review of the

conclusion must be delivered while acknowledging that the answer to such a question is always complex.

Letting the data guide the discussion, the leading conclusion to the central research question is that historical social and cultural norms serve as the primary barrier to increasing the female student population in the traditionally male-dominated programs and pathways, as defined in this study. Rooted within these findings are further explanations of student misconceptions of their capacity, socially engineered limitations, a lack of support from family and friends, and a general deficiency of knowledge of career pathways. We have an underrepresentation of women in our CTE trade and industry programs not because of restrictions and guidelines imposed by the CareerTech system or relevant workforce requirements but due to the socially self-imposed barriers casting predetermined definitions of what roles men and women play in society. While the research was conducted in the Spring of 2023, this phenomenon of gender roles and stereotypes is historically ingrained and embedded in the fabric of who we are. The argument could be made that these gender roles are rooted in the evolutionary processes of humanity itself.

The findings and discussion around the question should not be seen in a wholly negative light with little hope of improvement. Instead, we need to acknowledge the progress in opportunity and participation that has taken place over the years. While not typical, seeing a female welder, construction worker, painter, mechanic, etc., is no longer unheard of. This in itself should motivate that the efforts put forth both legally and socially have helped move the conversation forward of gender roles and stereotypes. As a researcher, professional in the field, and father of daughters, I do not believe we need to inject females or males into pathways in

which they have no interest. Instead, we need to support their individualistic journeys, ultimately resulting in the growth of all.

***Secondary research question discussion: What barriers exist?***

Key to the development of the study, secondary research questions are vital in targeting perspectives that can often be slightly askew from the central research question yet are essential to examining the problem of practice. The first secondary question of the study was, *what barriers exist for women entering traditionally male-dominated trade and industry programs?*

The findings were both eye-opening and disappointing. Within each of the protocols, one for the nontraditional students and the other for CTE faculty and staff, was a section titled barriers, where multiple questions were aimed at discovering the first-hand perspectives of the participants. Within these inquiries, an intentional effort was made to use the interviewees' experiences to help dissect the implicit and explicit biases that form the basis of the localized gender roles and stereotypes. From the research, various codes correlated to social or cultural barriers that stood as hindrances or roadblocks for more females to migrate into male-dominated trade programs naturally developed.

Of the codes, historical social and cultural norms, otherwise known as gender roles and stereotypes, rose to the top, followed closely by findings that suggest an unappreciation or misunderstanding of female student capacity, primarily derived from socially engineered constructs. The study revealed a strong correlation and interconnectedness between these particular codes and a lack of support from family and friends, often presenting the strongest negative motivators for the students. These, along with a general deficiency of knowledge of career pathways, represent the most potent negative influencing agents or barriers for women looking to enter into traditionally male-dominated trade and industry programs.

***Secondary research question discussion: Where did the interest originate?***

The second secondary research question aimed to drill down and gain insight into what motivated nontraditional students who had chosen to walk the path. In other words, why did they decide to go against the predominant gender roles and stereotypes of their peers? The intent was to gain perspective outside of my scope to understand more about the participants within the localized problem of practice. The question specifically asked, *where did the interest, inspiration, or idea of pursuing a nontraditional path originate for women who enter their programs of study?*

Both of the research protocols had a section titled interest & inspiration made up of two questions each. Once again, multiple questions were deployed intentionally to discover varying perspectives on and around the phenomena. The data revealed several codes that were informative and surprising. For most of the participants interviewed and in the context of the study, the interest, inspiration, or idea of pursuing a nontraditional pathway originated within the home or with very close friends. The participants repeated this concept of mentorship in providing the first motivations and exposure to the content and trades several times. These mentors were predominantly men, representing a positive correlative memory with the students about their capacity. Many of the students spoke about a general fascination with the content of the programs beginning at a young age because of these mentors. Interestingly enough, from within a pragmatic duality, these mentors were often the first to expose the students to the content and then be amongst the first to reinforce negative gender roles or stereotypes with the students, often from a sense of protecting the young female from the hardships of existing within a man's world.

***Secondary research question discussion: How can we increase enrollment?***

The last of the secondary questions went directly at the problem of practice, asking how we can increase the enrollment of the population. Specifically, it asked, *what can be done to increase the equitable enrollment figures?* While the question was straightforward, it should be noted that an equalitarian approach to program enrollment, meaning a 50/50 split between men and women, was not the intent or goal of this research. Instead, I chose this particular problem of practice to learn how to serve better female students who have an interest and wish to step into the male-dominated world of trade and industry programs. For further consideration, it is near impossible to definitively gauge or judge the amount of naturally occurring interest or desire to enroll in these programs of study by the female population. Therefore, a theoretical goal of program enrollment ratio between sexes is challenging and not recommended.

With this in mind, the question did yield some very informative results, most of which can be realistically implemented by the technology center districts. Nearly all participants mentioned the positive influencing power of seeing female students in the classroom and workplace environment through the marketing and recruiting efforts of the districts. Further, it was said that to help increase and retain the nontraditional population, support groups, mentorships, and counseling services would be of enormous importance. To positively effect change in enrollment numbers of nontraditional students, CareerTech districts need to be intentional in recruiting and marketing efforts, including more females in all cycle phases. This begins with the marketing efforts in the various mediums and stages, continuing into the recruiting cycle of having current and past female students help give tours and demonstrate processes within the shop environments. This verifies firsthand the population's capacity and can help promote the established localized inclusive cultures of programs. As mentioned earlier in

the chapter on the discussion of themes, it is powerful for people to see others like themselves doing the thing they want to do.

### **Major findings compared to literature, legal, and political constructs.**

A thorough review and examination of relevant literature and historic legal and political constructs was essential to developing a foundational framework for the study. Approaching this endeavor with an open mind and embracing the existing literature and works, the research project would most closely resemble social justice action, deeply rooted in feminist theory. The feminist theory values and philosophies would carry throughout the study, allowing me to approach the problem of practice from both an equality and equity perspective. In a further attempt to validate and assess the collected research data, an intentional evaluation and comparison will be made between the study's significant findings and prominent literature, legal, and political constructs, as discussed in chapter two.

### ***The Impact of Gender Roles and Stereotypes – Literature Comparison***

The most prominent relationship between the findings of the research and the reviewed literature, legal, and political constructs is the impact of gender roles and stereotypes on women. There is a vast library of well-written and reviewed literature on and around this theme, otherwise regarded as feminist theory or women's rights. I was able to incorporate a plethora of articles, studies, reviews, and books in the initial literature review of the study, specifically looking at this theme from multiple perspectives. A study by Struthers & Strachan completed in Australia in 2019 looked at how to increase the number of women in male-dominated trades and found very similar results, with the first finding being "The powerful influence of gender stereotypes on careers" (p. 10). For further review in comparison of findings, two hallmark

pieces of literature will be highlighted, spanning nearly 60 years between publication and representing multiple generations of the women's rights movement.

The first prominent book reviewed and used in positioning my framework dates back to Betty Friedan's 1963 foundational work, *The Feminine Mystique*. Famously, she asked, "is this all?" (Friedan, 1963, p. 1) as a challenge to the societal expectations of women at the time and the resulting psychological impacts of those decisions. Her groundbreaking work, written and framed within the early to mid-20<sup>th</sup> century, was a deep dive into the social expectations of women. In particular, she focused on the gender roles of women being housewives, raising children, shopping, and keeping a lovely home while the husband is away at work, being the sole breadwinner for the family unit. Her work directly questioned and challenged these roles and stereotypes, representing a voice for the generation of women who gave up their interests, inspirations, and professional aspirations, instead choosing to stay home, playing a character, potentially one for which they never knowingly aspired. Amongst others, she discussed the potential pitfalls for women in these situations of being trapped financially and unable to support themselves due to limited education and workplace experience, as well as the mental toll of never truly being able to express their full potential to the world (Friedan, 1963).

Over the years, her work was both controversial and socially counterculture to the traditional family structure and gender expectations, especially for their period. She would stir conversations about women's rights and empowerment of control over one's life. While the feminist movement has grown and changed since its inception, *The Feminine Mystique* still represents a foundational piece of historical and culturally relevant literature that speaks directly to the struggles of women's workplace rights, social expectations, and gender inequality. The nontraditional student interviewees repeated her words and themes nearly verbatim in discussing

their perspectives of gender roles and stereotypes in the world they had grown up in, even though the book had been written nearly 60 years prior. After completing the interviews and data analysis phases, I believe Betty Friedan's work is as pertinent and applicable as ever for nontraditional students to consider as they navigate their journey (Friedan, 1963).

The second prominent author whose work highlights gender discrepancies and inequalities within the workplace is Caroline Criado-Perez. Her 2019 work, *Invisible Women*, was an international bestseller and award-winning piece that utilized data to expose the gender inequalities that exist within our day-to-day operations of the world, both in professional and personal settings. An excellent read with an entirely different, not better or worse, tone and feel compared to *The Feminine Mystique*, Criado-Perez goes directly at gender inequalities, addressing the situations and circumstances with data-driven arguments, ultimately arriving at the central message: The world was designed for men, and women must fit into it to survive (Criado-Perez, 2019).

According to Criado-Perez (2019), "The female-specific concerns that men fail to factor in cover a wide variety of areas, but ... you will notice that three themes crop up again and again: the female body, women's unpaid care burden, and male violence against women" (p. XVII). The overall significance of her work to the study's topic comes through in her explanations and descriptions within these themes. For example, she outlines how the workplace, specifically when it comes to the traditionally male-dominated career pathways, is designed, built, and operates through the standardized conditions of the male physical self. She argues that these modern conditions are less intentional but rather based on the evolution of needs and requirements of men who have traditionally filled the roles. Therefore, even workplace conditions and environments need to be examined and considered through the eyes of true



gender neutrality, looking for accessibility and situations naturally manageable for both sexes (Criado-Perez, 2019).

One of the major themes she discusses throughout her work, the unpaid care burden, is based on the idea that women in the workplace carry and complete an overly disproportionate workload compared to their male counterparts. She explains how this is often necessary not for women to get ahead but simply for what is expected. An example she uses is party planning and clean up, where often in office work life, it is the women who are expected to plan, organize, deliver, and clean up afterward compared to the men who are asked only to attend. Within this example, she discusses the double standard of expectations that if a woman were to counter the office traditions and demand men handle it all, the woman would look bad, as if she is not a team player (Criado-Perez, 2019). Nearly all of the study's primary research participants, nontraditional female students, expressed in various contexts the concerns posed by Criado-Perez: physical workplace conditions and culturally inclusive environments.

These two texts are separated by more than 56 years of publication. *The Feminine Mystique* is a qualitative project steeped in rich narrative and firsthand insight gained primarily from the participants of the period to define and describe a developing phenomenon within middle American life. *Invisible Women*, on the other hand, is written in a thick narrative but offers a quantitative statistical approach to analyze, produce, and defend the proposition that the world was built and operates first for men and that women must fit in however necessary. These two works were intentionally chosen for comparison against the study's findings due to their vast differences yet similarities in the overarching feministic theory pantheon. Simply put, they are essential works in the field of gender equality and workplace rights (Criado-Perez, 2019; Friedan, 1963).

Throughout the interviews and data analysis of the study, I kept returning to pieces from these texts. In several interviews, the feministic concept of Betty Friedan's question, "is this all?" (Friedan, 1963, p. 1) came up and reminded me of the text published some 60 years prior. Conceptually related, several participants voiced their concerns or thoughts that they did not want to be relegated to being a stay-at-home mom only taking care of kids. They wanted to explore their interests and professional options because they knew they had to be able to take care of themselves. In several interviews, themes from *Invisible Women* would reveal themselves, particularly concerns about workplace accessibility and safety for women, specifically about Criado-Perez's discussion on how women and their physical statures are not considered in the daily operation of the workplace environment. Further, the consistent and pertinent idea from both texts and throughout several of the interviews was that women's professional and personal lives require much more energy and effort to maintain balance and success than their male counterparts. While the legal and political constructs of the current era specifically outline protections and laws prohibiting gender and workplace discrimination, the literature reviewed and findings of the study report that gender roles and stereotypes continue to play a substantial factor in the lives of nontraditional students (Criado-Perez, 2019; Friedan, 1963).

### ***Reality That Mentors, Representation, And Support Matter – Literature Comparison***

One of the study's significant findings was that mentors, representation, and support matter for the nontraditional student. It was mentioned by nearly all interviewees that to help increase enrollment and retention numbers, intentionality had to be given to the equitable representation of the population as well as support for the current students to help them navigate into the workforce. Support would include educational and workforce mentors, career and

mental health counselors, and peer-level support groups. Throughout the review of the literature, several pieces highlighted and reinforced this particular portion of the theme. For example, when discussing results from their study on how to help increase women in the male-dominated trades, Struthers & Strachan (2019) said, “A number of students expressed interest in knowing more about the trades and having mentors” (p. 10). Their study acknowledged that while few women are in the trades, nontraditional students could benefit from male and female mentors providing motivation and support (Struthers & Strachan, 2019). According to Morris (2011), “Mentors offer critical knowledge, expertise and help to guide students in their career and educational development” (p. 54). Pieces by Chang & Milkman (2020), Fink (2018), and Pellom (2021) all speak to the impactful nature of mentors on the nontraditional student.

A resounding theme expressed by the interview participants was the power of seeing females in marketing materials, during recruiting efforts, and working successfully in the field they are considering, all representing nontraditional students in action. In other words, the representation of a population is extremely influential and impactful to the participants (Phillips, 2022; Toglia, 2013). Sometimes, seeing can be believing. For example, when discussing her research on how to increase nontraditional participation in CTE, Morris (2011) spoke to the power of representation when she said, “Educators identified several additional strategies designed to facilitate the recruitment of girls including the use of “recruiting media” to demonstrate girls participating in nontraditional careers. One educator suggested a focused marketing campaign” (p.133). While also generally referred to as representation within the literature, a further deep dive yielded interesting insights into the availability of supporting works. The supporting literature around utilizing increased representation within the recruiting and marketing efforts for nontraditional students is limited and dated. Given the emphasis placed

on this portion of the theme by all interview participants, it surprises me that more current literature is unavailable.

That being said, Knight & And Others (1980) had the following conclusion from their study, “Audio-visual, instructional, and orientation materials that include representations of females are useful in the recruitment, retention, and placement of female students in non-traditional programs” (p. 14). Pelling (2001) further highlights the importance of representation when she said, “Many have found the visibility of women, and other nontraditional workers, within certain fields key to the future participation of nontraditional people in a field” (p. 18). While these two works are very informative and provide literature-based support and congruence with the study’s findings, I believe that recruiting and marketing strategies may look different with the advent of all things electronic that exist in 2023, beginning with the exponential expansion of the internet, social media platforms, AI engines and wide-spread ownership of cell phones (Narayandas & Sengupta, 2023; Risteska, 2023; Zhang & Song, 2022). No matter the age, era, generation, gender, creed, or color, representation matters. As humans, we are more comfortable seeing others like ourselves. It gives us confidence and permission to try. Students are no exception to this (Morris, 2011; Phillips, 2022; Pelling, 2001; Toglia, 2013).

The remaining portion of this finding to discuss is the incorporation and implementation of support services for nontraditional students. Mentioned in various forms by the interviewees, including counselors, mentors, and peer support groups, it encompasses the idea that students want and need additional services to help them navigate their often very individual journey. According to Toglia (2013), “Common practices ... include the development of mentoring programs that pair women and girls with female role models, providing peer and institutional support for those pursuing traditionally male fields of study” (p. 16). Much like the previously

discussed section on representation literature being limited, the collective work on support services for nontraditional CTE students is lacking. When mentioned, the literature often uses the words support or services without giving much depth to specific strategies. General takeaways from the literature, compared to the findings, indicate that an intentional effort to organize peer support groups across various programs for nontraditional students would be very beneficial. Also, bringing current nontraditional professionals working in their respective industries to visit with the students and share their experiences can be very important to retaining and growing the population. Further, having a dedicated counselor responsible for regularly checking in with the student has been identified as a potential positive strategy. All of the mentioned support services represent equitable actions that districts can take to help ensure the success of the limited group (Davis, 2022; Fluhr et al., 2017; Kim et al., 2020; Pelling, 2001; Phillips, 2022; Tatar & Da'as, 2012; Toggia, 2013).

### ***Binding Characteristic of Resiliency – Literature Comparison***

A particular theme was developed through the interviews and data analysis phases, leaving me inspired and motivated. All successful nontraditional students possess a binding characteristic of resiliency and determination to overcome throughout their endeavors. While difficult to define and even harder to generalize across all participants, each student had something unique that allowed them to be successful. This left me with more questions about why and how these internal characteristics developed, resulting in their resilience and perseverance to grow. The very nature of being a nontraditional student means that an individual is choosing to walk against the grain or norms of society, instead pursuing a path unique to themselves.

While a general appreciation and respect for the nontraditional student come across from nearly all of the literature reviewed, there are hardly any specific works reviewing or detailing the intrinsic motivators or factors behind what inspires nontraditional students to push against societal pressures. One of the few reviewed examples of such work comes from Renee Pellom's 2020 study of women in non-traditional post-secondary CTE programs. Her qualitative study looked at the students' lived experiences and, through their perspectives, determined what motivating factors were behind their drive and determination. She was ultimately looking at why and what motivated the students. Similar in theory to my findings, her conclusions were well-defined and articulated. They specified that their high intrinsic drive, resilience, independent nature, and ability to strategize their moves in a man's world set the nontraditional students apart. A fascinating study on and around this question, she defined and approached the inquiry utilizing the self-determination theory framework (Pellom, 2021). According to Pellom (2021), "This approach provided a framework for understanding and describing the various forms of intrinsic and extrinsic sources of motivation in cognitive and social development, and how motivation manifests differently in Individuals" (p. 8).

Upon initial review of the self-determination theory (SDT), it makes an excellent framework for looking at what motivates nontraditional students and what could be done better to attract and retain those who chose otherwise. The self-determination theory was introduced in the 1980s by Richard Ryan and Edward Deci and has since been utilized in various forms and functions, providing a framework for analyzing motivation. A quality working definition of the theory comes from their 2017 book, *Self-determination Theory: Basic Psychological Needs in Motivation, Development, and Wellness*. According to Ryan and Deci (2017):

The theory examines how biological, social, and cultural conditions either enhance or undermine the inherent human capacities for psychological growth, engagement, and wellness, both in general and in specific domains and endeavors. Self-determination theory research thus critically inquires into factors, both intrinsic to individual development and within social contexts, that facilitate vitality, motivation, social integration and well-being, and alternatively, those that contribute to depletion, fragmentation, antisocial behaviors, and unhappiness. (p. 3)

The literature on and around the SDT is vast and would provide an excellent lens for consideration on future projects. However, for the sake of this study, I will introduce and acknowledge its appropriateness for examining motivation and interconnectedness with the third finding of the study. Shankland et al. (2009) reinforce the utilitarian usage of the framework by saying, “According to self-determination research in the field of education, class climate, and in particular teacher behavior (autonomy-supportive or controlling), has an important impact on students’ intrinsic motivation which, in turn, affects other components such as competence perceptions and school performance” (p. 501). The SDT allows us to examine multiple internal and external conditions, factors, and environmental pressures at once to determine better an individual’s “why,” reasoning or rationale for behaviors (Pellom, 2021; Ryan & Devi, 2017; Shankland et al., 2009).

### **Limitations of the Study**

As is the case for any research project, potential challenges could arise through the process and serve as limitations towards the validity of the findings. To ensure high levels of researcher reliability and trustworthiness, I believe it is essential to operate with transparency and

reveal any areas of concern. Further, it is necessary to address the initial Limitations section described in Chapter 1 of this study to compare pre and post-conclusions.

### *Sample Sizes*

At the beginning of the study, sample sizes were at the forefront of my concerns as a potential limitation. Adequately and appropriately representing the defined population becomes difficult without a suitable sample size. The repercussions of this can be serious methodological questions involving obtaining data saturation due to low representation of the study's population, directly challenging one's reliability and validity. Given that the targeted population for the study was nontraditional students, by its very definition, a limited group, there was concern that I would not be able to reach enough participants to represent the group as a whole accurately. However, when approaching the study from the framework of being a localized scholar-practitioner, not necessarily concerned with discovering conclusions that serve as overarching foundational generalizations representing all of humankind, the concept of sample sizes comes into a much tighter focus. Examining a localized problem of practice through the lens of a localized scholar-practitioner allows a researcher to narrow down the focus to seeking an adequate and appropriate representation of the study's population within the bounds of the study itself (Creswell, 2015; Creswell & Creswell, 2018).

From the beginning of the study to its conclusion, this initial cause of concern or potential limitation of sample sizes evolved for me with the acceptance of operating within the bounds of being a localized scholar-practitioner. Within the study itself, I believe the sample size was adequate as it equally represented all of the predefined technology center districts, and all initial sample size protocols came to fruition with ten students and eight faculty and staff members. Where a limitation of the study's sample size does exist is in its power of generalization to the



greater population of nontraditional female students in CTE across not only the state of Oklahoma but nationwide and even internationally. Harnessing the insight and firsthand data from 10 students is inadequate to assist in such a large-scale endeavor. Rather, the small sample size population and localized effort can only add to a more significant body of work in a collective effort beyond that of myself. I felt that data saturation occurred within the bounds of the predefined research protocol.

### ***Researcher's Influence, Bias, or Positionality***

The most significant area of concern as a limitation going into the data collection process was for researcher influence, bias, or positionality to develop and effect results. At the time of data collection, I was 39 years old, studying female participants of traditionally male-dominated programs with an average age of 21. While my intentions were pure in identifying barriers to help serve an underrepresented population, I am also aware that my presence could skew results, serving as a limitation. While it is challenging to know for sure if my presence influenced or tainted the participant's responses, I believe that due to my intentionality in developing, delivering, and reviewing the protocols used throughout the process, the responses and resulting data were genuinely representative of the participant's beliefs, insight and experiences (Creswell & Creswell, 2018).

Throughout the data collection process, including before, during, and after the interview, I was very intentional in observing the behaviors of the interviewees, watching and listening to both verbal and nonverbal signs of unease or uncomfortableness. If witnessed, it was noted, and adjustments made. For example, when several students were seen as nervous to begin, intentions were given to ease their tensions through light conversation to allow the students to warm up and gain comfort. The protocol would begin once the student appeared relaxed and open to speak.

Also, it was repeated several times in the introduction and delivery of the protocol that they are in charge of the interview, we could stop at any time, and I am only here to gain insight from their lived experiences, meaning no wrong answers (Creswell & Creswell, 2018).

The remaining area of concern as a limitation was researcher bias in collecting and analyzing the data. Unsurprisingly, I am a big proponent and fan of the study's population, but this bias could be a potential limitation in delivering valid and trustworthy results (Creswell, 2015; Creswell & Creswell, 2018). I believe that with such a concern, the first step is to acknowledge one's bias and potential negative impact on the study if those biases or positionality come through in the findings. With this said, maintaining a high level of researcher reflexivity is essential to combat these concerns. Creswell & Creswell (2018) reinforce the importance of such and how to achieve reflexivity by stating, "inquirers reflect about how their role in the study and their personal background, culture and experiences hold potential for shaping their interpretations, such as the themes they advance and the meaning they ascribe to the data" (p. 182). Even with practicing reflexivity throughout the collection and analysis phases, there is always a potential threat of bias or positionality in the findings. I trust that due to my concerns of tainting findings and risking validity, my resulting intentionality in this protocol helped mitigate and minimize any threats to bias, positionality, and influence.

### **Recommendations for Future Research**

Through the data collection, analysis, and production of the study results, a few areas sparked my interest in future research. These developed due to in-the-field experiences, data analysis gaps, or literature comparisons to findings discussions. The recommendations will be posed as questions for consideration.

### ***Impact on Marketing and Recruiting***

The first recommendation for future research is: What impact do marketing and recruiting efforts make on nontraditional student enrollment when representation is present and intentional? Through the interviews, most participants voiced the need and recommendation for more representation of females in the nontraditional program marketing and recruiting efforts to increase enrollment. The recent marketing trend throughout the Oklahoma Department of CareerTech statewide system and each of the individual CareerTech districts in the study has been to include a more diverse and inclusive student body representation, including those of nontraditional students. However, a measured impact of such efforts has not been calculated or identified, at least not to my knowledge. An excellent study would be to evaluate the effectiveness of such inclusive marketing campaigns on enrollment utilizing the concepts of representation as a framework.

### ***Measure Support Strategies***

Another interesting finding that would make a great study would be to measure the effectiveness of support strategies on nontraditional student retention. What strategies or supports work for nontraditional student retention? The interviews yielded excellent insight and findings for consideration. Amongst those were recommendations by several students for mentors, dedicated counselors, and peer support groups to help the current nontraditional students navigate their educational programs and as they transition into the workplace. I believe many of these strategies would require little cost to the districts, rather an intentionality in establishing and maintaining an equitable series of programs targeted at the specific population. The study's impacts could stretch beyond helping retain the students. For example, it could potentially positively influence the local economies as mentors and partnerships could naturally

develop, impacting the workforce and creating inclusive cultures within the programs of study and technology center districts.

### ***Why and What Motivated***

The final recommendation was discovered upon reviewing the findings against the literature. One of the three significant findings of this study was the binding characteristic of resiliency for nontraditional students who are successful in their programs. Upon looking into the literature, my fascination with why the students choose their paths and how they develop their resiliency caught my attention. I was surprised by the lack of literature on and around the phenomenon. The questions examined would be why nontraditional students choose their pathways and what has motivated their endeavors to walk counterculture against the gender role of society? The literature did lead me to the self-determination theory (SDT), which was both fascinating and could serve as the potential framework by which to look into the phenomenon.

### **Implications for Practice**

With all the preparation, planning, organizing, interviews, data analysis, and findings completed and vetted, now what? The whole intent of this study and project was to take a localized problem of practice and, through the lens of a scholar-practitioner, identify real-world actions that could be undertaken to help. I believe the study's major findings are a great place to formulate real-world next steps.

### ***Champion for Success***

The impact of gender roles and stereotypes has been a long-standing, well-documented, and studied social issue within our country. The most significant implication for practice from this finding is intentionally providing awareness and a voice for current and future nontraditional students, serving as a champion for their success. Further, as an administrator within our

CareerTech system, I must be mindful and guide our recruiting and admissions staff in providing equitable focus and attention to the nontraditional students when they voice interest. As an individual in a position of influence where I could negatively impact the intake of students, I must be highly focused and intentional with my actions and words supporting the equitable inclusion of the nontraditional population in all facets. Moreover, I need to ensure that faculty and staff are treating all students with respect and helping them achieve their goals without any negativity, discrimination, or resistance. While I cannot reverse the generations of established gender roles and stereotypes, I can stand up for and voice my support in favor of any student chasing their dreams, including nontraditional students brave enough to walk against the grain of society.

### ***Mentors***

Of the findings, the reality that mentors, representation, and support matter for nontraditional students was the one that I immediately knew could be actionable and implemented quickly and at a relatively low cost. The CareerTech system in Oklahoma requires all technology center districts to actively maintain a current advisory committee for each of their full-time programs. These committees are required to meet twice a school year with various intents, but ultimately to ensure that what is being taught is relevant to the local industries and to provide an active link between employers and our instructors for when students graduate. They serve as a pipeline for graduating students and to ensure our programs stay up-to-date with curriculum, technology, and industry standards. Because of these committees, which are comprised of, amongst others, local business owners, managers, and employees, they are the perfect opportunity to develop mentorships for students. Given that the advisory members are volunteers and do so because of the value they see in participating with the local technology

center district, believing they would agree to some mentor opportunities is not far-fetched. These advisory committee members often know of a few nontraditional female employees who were once nontraditional students. Given this connection, establishing real-world quality mentorships would be a natural fit. The mentorships could also be set up within the technology center district, whose employees often include numerous industry experts. These mentorships would only really require the administrative organization and logistical support of the district to be undertaken.

### ***Marketing and Recruiting***

Other implications for practice would include the intentional equitable representation and inclusion of females from the male-dominated trade programs in the marketing and recruiting efforts of the district. This would include showing females in various marketing mediums, including catalogs, the district's website, and social media channels. For authenticity, the female students should be shown not only standing and smiling but, more importantly, participating and working with the tools of the trade. This would provide a visual confirmation and reinforcement that females naturally possess the necessary capacity to be successful.

Further, intentionality would be given in ensuring that females would be present in every male-dominated program for recruiting visits and tours of potential students. Potential female students can be inspired, influenced, and supported in decision-making if they see other females in the programs. One of the major codes pulled from the data of this study was that several students were fearful they would be the only girl in the program. We could immediately shut down that fear if a potential nontraditional student gets to see and visit with a current or former nontraditional student. For clarity, technology center districts bring in potential students from the sending schools ages middle school through high school every year. Because of the individualistic nature of each district, not all technology districts bring in the same ages. These

ages are often changing with state-level requirements and the needs of the sending schools. The only actual consistent age is for all sophomores around the state to tour due to the vast majority of CareerTech programs potentially beginning in their junior year of high school.

### ***Peer Support Groups***

The remaining implication for practice involves targeted support of the nontraditional student through individual check-ins with counselors and peer support groups. As mentioned by several students in the interviews, developing an internal peer support group of nontraditional female students would benefit current students' retention and potential recruitment. The group would be regularly scheduled, potentially monthly or quarterly, and comprise any female nontraditional student who wanted to join and discuss a predetermined topic that would ultimately lead to a sense of community for those who may be massively in the minority in their program. Ideally, the groups would bring current professional nontraditional employees from the workplace who could share their real-world experiences and insights from navigating a man's world. Once again, this would help create a culture of inclusion within the district and could have an even greater impact on the local community and economy.

### ***Check-ins***

The support of nontraditional students could begin as simply as regularly scheduled check-ins from the counselors with their nontraditional students. These check-ins would be to see how things are going and provide support. In the interviews, several students said they wished someone would check in to see how they were doing. In fairness, I do not believe this should be relegated and placed only as the counselor's responsibility. In reality, there is no reason that the administration cannot assume some of the roles as well, or even better, it becomes a team approach of offering check-ins. The rationale for saying only counselors is that the interviewed

students only mentioned the counselors. I believe this is most likely a result of a limited to nonexistent relationship with campus administration, as the counselors are largely responsible for the initial conversations of recruitment and enrollment. Regardless, an initiative could be developed involving the culmination of several of the recommended actionable items or implications for practice, ultimately resulting in real-world equitable actions targeted at supporting the nontraditional population within the district.

### **Personal Reflections of the Researcher**

This journey began from a fascination with watching female students walk into a male-dominated world and, more than not, outperform their male colleagues. In a twisted sense of humor, I enjoyed watching the guys with their young egos get checked and put in place not by words but by actions of the females demonstrating high technical skills, simply outperforming them. I believe my draw to these students is most likely rooted in a psychological level of relation to being an underdog or outsider, making one's way in life through sheer effort and determination, not necessarily due to naturally born circumstances, talent, or position. Regardless, I found inspiration in the journey from the students, listening to their experiences and circumstances and how they stepped into the struggle despite what society deems because they felt called or pulled into their paths.

As I began to progress through the study's steps, processes, and procedures, the questions started with why and how and grew to, what can we do to better serve? This swing in perspective was a natural evolution for me, I assume, due to the proximity of the participants. However, maybe the shift has also resulted from growth. As a father of three, two of whom are girls, a husband, a son, and a grandson, I have been blessed to be surrounded by strong women, both professionally and personally speaking. Throughout the process of this study, the idea of equity



vs. equality has entered my consciousness repeatedly. Having been raised in a world and environment where I have genuinely seen men as equals to women, the idea of equitable action has been evolving within me. Not ever being opposed to equity, but rather possessing a stronger belief in working hard and overcoming obstacles with a no-excuse mentality framed in the belief that the world gives us all equal opportunity. From this personal philosophical framing, I have a sense of change, particularly the belief that we are all born with equal opportunities to succeed, yes, but maybe not.

This internal evolution around equity feels more like a professional charge to help support and build systems for opportunities to be realized for all who dare to pursue their path. In some of our early coursework dissecting our professional “whys,” I particularly remember being called to serve as a giver of opportunity and provider of hope. Both hold immense power and meaning, not to be taken lightly. Yes, from the feministic framework, these positions and pondering could be seen as a result of my protective masculine male nature. However, I believe it might be a bit of an awakening, potentially more so due to having two daughters than anything and recognizing potential barriers they could face in life. This world can be mean and callous enough on its own, but I want to do the greater good and serve as a giver of opportunity and provider of hope with the talents and skills bestowed upon me, which at times will require equitable actions to help others step out of circumstances for which they had no control.

## **Conclusion**

Chapter 5 concludes this research study. This general inductive qualitative study allowed me to target five Oklahoma City metro area technology centers, each representing diverse communities, socioeconomics, ethnicities, and races. A total of 10 nontraditional female students, two from each district, who were currently enrolled in a male-dominated program of

study, and eight CTE faculty and staff members, including one counselor from each district, were interviewed utilizing tailored protocol in a one-on-one setting. The study explored why we have such an underrepresentation of women in our CTE trade and industry programs. An additional three secondary questions were deployed to help gain perspective and insight on and around this problem of practice.

The meticulously analyzed data yielded many findings and potential implications for practice. I whittled down the study's findings into three main categorical sections: The impact of gender roles and stereotypes, the reality that mentors, representation, and support matter, and lastly, the binding characteristic of resiliency between nontraditional students. The underlying conclusion of this research is that while legal protections prohibit discrimination based on gender, culturally ingrained gender roles and stereotypes are still active and pervasive in society. It could be argued that society has begun to evolve, loosening up on stereotypes and gender roles. However, the reality is that they are still firmly rooted to the extent that career pathways and educational obtainment are still being heavily influenced by gender bias and cultural expectations. That being considered, the research did reveal positive success stories and firsthand recommendations of actionable implications for practice to help future potential students. These include mentors, more representation in marketing and recruiting efforts, and support strategies such as peer support groups and regular check-ins with counselors.

As a result of the study, three further research project ideas came to light. The first is, what impact do targeted marketing and recruiting efforts make on nontraditional student enrollment when representation is present and intentional? The second is what strategies or supports work for nontraditional student retention? The third is why nontraditional students choose their pathways and what has motivated their endeavors to walk counterculture against the

gender roles of society? Though this research project has concluded, I will take with me the implications for practice and begin implementation when possible. In the end, all of us deserve our shot at the American dream, wherewith continuous effort, a certain degree of natural talent, and a little luck, we too can make it, elevate our status, and forever change the dynamics of not only over lives but those around us.

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## APPENDIX A

**List of metro area technology centers within Oklahoma used for the study.**

### **Canadian Valley Technology Center (CVTC)**

District Office:

6505 E Highway 66  
El Reno, OK 73036

School Districts Served: Alex, Amber Pocasset, Banner, Bethany, Calumet, Chickasha, Darlington, El Reno, Friend, Maple, Minco, Mustang, Ninnekah, Piedmont, Pioneer, Riverside, Rush Springs, Tuttle, Union City, and Yukon.

### **Francis Tuttle Technology Center (FT)**

District Office:

12777 N Rockwell Ave  
Oklahoma City, OK 73142

School Districts Served: Cashion, Crescent, Deer Creek, Edmond, Putnam City, and Western Heights.

### **Metro Technology Center (MTC)**

District Office Location:

1900 Springlake Drive  
Oklahoma City, OK 73111

School Districts Served: Crooked Oak, Millwood, and Oklahoma City.

### **Mid-America Technology Center (MATC)**

District Office:

27438 OK-59,  
Wayne, OK 73095

School Districts Served: Blanchard, Bridge Creek, Byars, Dibble, Elmore City-Pernell, Lexington, Lindsay, Little Axe, Maysville, Newcastle, Noble, Paoli, Pauls Valley, Purcell, Stratford, Wanette, Washington, Wayne, Whitebead and Wynnewood.

### **Moore-Norman Technology Center (MNTC)**

District Office:

4701 12<sup>th</sup> Ave NW  
Norman, OK 73069

School Districts Served: Moore and Norman.

# APPENDIX B

## CTE Faculty and Staff Interview Guide

Interviewee:

Position:

Technology Center:

Interviewer:

Protocol Section Used:

- \_\_\_\_\_ **A. Introductions**
- \_\_\_\_\_ **B. Interviewee Background**
- \_\_\_\_\_ **C. Barriers**
- \_\_\_\_\_ **D. Interest & Inspiration**
- \_\_\_\_\_ **E. Increasing Participation**
- \_\_\_\_\_ **F. Concluding**

Other Topics Discussed: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Documents Obtained: \_\_\_\_\_

\_\_\_\_\_

Post Interview Comments, Observations, or Leads: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## **A. Introductory Protocol**

*With your permission, we would like to record our conversations today to facilitate our note-taking. Please sign the release form. For your information, only researchers on the project will be privy to the recordings, which will eventually be destroyed after they are transcribed. In addition, you must sign a form devised to meet our human subject requirements. Essentially, this document states that: (1) all information will be held confidential, (2) your participation is voluntary, and you may stop at any time if you feel uncomfortable, and (3) we do not intend to inflict any harm. Thank you for your agreeing to participate.*

*We have planned this interview to last at most 1 hour. During this time, we have several questions that we would like to cover. If time begins to run short, it may be necessary to interrupt you to push ahead and complete this line of questioning. A \$10 gift card will be distributed to the student upon completion of the interview.*

### Introduction

You have been selected to speak with us today because you have been identified as someone with a great deal to share about nontraditional student participation from within the CTE system. Representing the framework of a localized scholar-practitioner from within the environment, this study aims to gain a deeper understanding and appreciation of the phenomena surrounding nontraditional students within traditional CTE trade and industry programs of study to discover practical, real-world applicable and equitable actions that can be taken to provide equalitarian opportunities for all. The study does not aim to evaluate your techniques or experiences. Instead, we are trying to learn more about the phenomenon of nontraditional students. The potential significance of the research findings would be to discover practical



solutions to serve better and, in turn, provide more opportunities for an underrepresented population, women, in traditional trade and industry programs.

For clarity, as defined by Federal Carl Perkins Legislation, a nontraditional student is one whose gender represents 25% or less of the population within the program of the student and, ultimately, career pathway.

### **B. Interviewee Background**

How long have you been ...?

\_\_\_\_\_ in your present position?

\_\_\_\_\_ at this technology center?

\_\_\_\_\_ involved with CTE?

1. Briefly describe your role (office, committee, classroom, etc.) as it relates to CTE student recruitment, counseling, admissions, instruction, or learning.

2. What experience do you have working with nontraditional CTE students?

3. How would you describe the overall participation of nontraditional students within your district?

### **C. Barriers**

1. In your opinion, why is nontraditional participation so low? What are the leading factors or barriers holding back an increase in enrollment?

2. Have you encountered or witnessed negative persuasion or resistance of any kind to the recruitment, admission, or instruction of nontraditional students?

### **D. Interest & Inspiration**

1. In your experience, is there a most popular program for nontraditional students within your district? Why do you think that is?

2. In your experience, where did the interest, inspiration, or idea of pursuing a nontraditional path originate for women who enter their programs of study? Biggest factor?

### **E. Increasing Participation**

1. Would you describe the strategy within your technology center district for improving or increasing nontraditional student participation within your programs of study? Is it working – why or why not?

2. In your opinion, what should be done by the technology center districts to help increase the nontraditional student population?

### **F. Concluding**

1. Why do we have such an underrepresentation of women in our CTE programs?

2. Was there anything not covered or asked you would like to add to our conversation?

# APPENDIX C

## CTE Nontraditional Student Interview Guide

Interviewee:

Age:

Program:

Current or Former Student:

Technology Center:

Interviewer:

Protocol Section Used:

- A. Introductions**
- B: Interviewee Background**
- C. Barriers**
- D. Interest & Inspiration**
- E. Increasing Participation**
- F. Student Experience**
- G. Concluding**

Other Topics Discussed: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Documents Obtained: \_\_\_\_\_

\_\_\_\_\_

Post Interview Comments, Observations, or thoughts: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## **A. Introductory Protocol**

*With your permission, we would like to record our conversations today to facilitate our note-taking. Please sign the release form. For your information, only researchers on the project will be privy to the recordings, which will eventually be destroyed after they are transcribed. In addition, you must sign a form devised to meet our human subject requirements. Essentially, this document states that: (1) all information will be held confidential, (2) your participation is voluntary, and you may stop at any time if you feel uncomfortable, and (3) we do not intend to inflict any harm. Thank you for your agreeing to participate.*

*We have planned this interview to last at most 1 hour. During this time, we have several questions that we would like to cover. If time begins to run short, it may be necessary to interrupt you to push ahead and complete this line of questioning. A \$10 gift card will be distributed to the student upon completion of the interview.*

### Introduction

Based on the recommendation of your technology center's faculty and staff, you have been selected as a candidate to interview for this study due to your identification as a nontraditional student. Representing the framework of a localized scholar-practitioner from within the environment, this study aims to gain a deeper understanding and appreciation of the phenomena surrounding nontraditional students within traditional CTE trade and industry programs of study to discover practical, real-world applicable and equitable actions that can be taken to provide equalitarian opportunities for all. The study does not aim to evaluate, define or label your lived experiences. Instead, we are trying to learn more about the phenomenon of nontraditional students. The potential significance of the research findings would be to discover

practical solutions to serve better and, in turn, provide more opportunities for an underrepresented population, women, in traditional trade and industry programs.

For clarity, as defined by Federal Carl Perkins Legislation, a nontraditional student is one whose gender represents 25% or less of the population within the program of the student and, ultimately, career pathway.

### **B. Interviewee Background**

1. Please tell me about yourself and the journey that brought you to this technology center.

2. What motivated you to attend this technology center, and more specifically, why this particular program of study? Why this industry?

Probe: What was the most significant factor that influenced your decision?

### **C. Barriers**

1. In your opinion, why is nontraditional participation so low? What are the leading factors or barriers holding back an increase in enrollment?

2. When you first decided to pursue a nontraditional career path did you experience any harassment, discriminatory behavior, or negative motivations aimed at steering you away from the industry?

Probe: If you don't mind, where or who did the behavior come from?

3. Given that there is a genuine interest in the curriculum or content, why does the average female student choose not to enroll and pursue a career in the traditionally male-dominated trades?

### **D. Interest & Inspiration**

1. In your experience, is there a most popular program for nontraditional students within your district? Why do you think that is?
2. Before starting your program of study, did you have any personal experiences with the content or curriculum being taught? Did you know of any females working in the field?

### **E. Increasing Participation**

1. In your opinion, what should be done by the technology center districts to help increase the nontraditional student population? How could they recruit better?
2. What would have helped persuade you to enroll?

### **F. Student Experience**

1. For a nontraditional student in your technology center district, what resources exist to support and develop their progress?  
Probes: If none, what do you think would be beneficial?

### **G. Concluding**

1. Why do we have such an underrepresentation of women in our CTE programs?
2. Was there anything not covered or asked you would like to add to our conversation?

## APPENDIX D

### Institutional Review Board (IRB) Approval Letter



#### **Institutional Review Board for the Protection of Human Subjects Approval of Initial Submission – Exempt from IRB Review – AP01**

**Date:** March 08, 2023

**IRB#:** 15675

**Principal Investigator:** Josh W Shandy

**Approval Date:** 03/08/2023

**Exempt Category:** 1 & 2

**Study Title:** GENDER INEQUALITY IN CAREER AND TECHNICAL EDUCATION: WOMEN IN NONTRADITIONAL TRADE AND INDUSTRY PROGRAMS

On behalf of the Institutional Review Board (IRB), I have reviewed the above-referenced research study and determined that it meets the criteria for exemption from IRB review. To view the documents approved for this submission, open this study from the *My Studies* option, go to *Submission History*, go to *Completed Submissions* tab and then click the *Details* icon.

As principal investigator of this research study, you are responsible to:

- Conduct the research study in a manner consistent with the requirements of the IRB and federal regulations 45 CFR 46.
- Request approval from the IRB prior to implementing any/all modifications as changes could affect the exempt status determination.
- Maintain accurate and complete study records for evaluation by the HRPP Quality Improvement Program and, if applicable, inspection by regulatory agencies and/or the study sponsor.
- Notify the IRB at the completion of the project.

If you have questions about this notification or using iRIS, contact the IRB @ 405-325-8110 or [irb@ou.edu](mailto:irb@ou.edu).

Cordially,

A handwritten signature in black ink that reads 'Aimee Franklin'.

Aimee Franklin, Ph.D.  
Chair, Institutional Review Board

## APPENDIX E

### Qualitative Data Display – Coding Process Example

Analysis process example from raw data to codes to analytical category.

Sample coded interview transcription section from *Student 3* demonstrating three levels of coding.

**Josh** (02:53):

“So, in your opinion, and we've talked about what non-traditional means. In your opinion, why is non-traditional participation so low, and what are the main barriers that you think hold others back? Maybe not necessarily you because you're here being successful, but what are the leading barriers? Factors holding other females back?”

**Student 3** (03:30):

“They may be a little intimidated because it's a lot of guys, and so they may not be really comfortable being like that. That sort of outcast. Well, it's not really an outcast because the guys are actually welcoming, surprisingly, but they may be scared of that or scared to hear the different stereotypical conversations or just anything. And then also, anytime that you try to go the non-traditional route, a lot of people forget that you are still a woman sometimes. So, then they have to deal with being looked at as masculine, and then it takes away a lot of stuff that they expect in society because they're like, oh no, she's tough. She got it. And it's like, no, I'm still a lady. I just do tough work, but I'm still a lady.”



**Raw Data to Codes to Analytical Category:**

“they may not be really comfortable being like that. That sort of outcast” -

**Barriers: Potential Student Misconceptions: Be the only Female in the Program**

“because the guys are actually welcoming, surprisingly” –

**Student Experience: (+) Very welcoming Environment in Tech Center**

“they may be scared of that or scared to hear the different stereotypical conversations or just anything. And then also, anytime that you try to go the non-traditional route, a lot of people forget that you are still a woman sometimes” –

**Barriers: Potential Student Misconception: Afraid to Socially take the Leap**

“a lot of people forget that you are still a woman sometimes. So, then they have to deal with being looked at as masculine, and then it takes away a lot of stuff that they expect in society because they're like, oh no, she's tough. She got it. And it's like, no, I'm still a lady. I just do tough work, but I'm still a lady.” –

**Student Experience: Forget you're still a woman, not masculine. Stereotyping**

## **Themes & Codes of Study**

### **Interviewee Background – Before Beginning Program (Students Perspective)**

Prior exposure to content: Family

Prior exposure to content: NONE

Prior exposure to females in their trade area: None

Prior exposure to females in their trade area: Yes

### **Interest & Inspiration – Before Beginning Program (Students)**

Interest: Fascination with content & equipment

Interest: Family/Friend spoke of training opportunities at the CTE center

Interest: Hands-on, Learning style

Interest: Good career pathway: Opportunities, Money, Security

Interest: Learn how to work on my own stuff

### **Interest & Inspiration – Before Beginning Program (F & S perspective)**

Interest & Inspiration: Mentor from the field: Family/Friend

Interest & Inspiration: Social media/TV influence

Interest & Inspiration: High wages

Interest & Inspiration: The program looked interesting

### **Barriers – Before Enrollment (All – Students and F & S)**

Barriers: Historical Social and Cultural Norms – Gender roles: Afraid to socially take the leap

Barriers: Potential Student Misconceptions: Be the only female in program: Unwelcome

Barriers – Unsupported at home – Family & friends negative influence-Question choice

Barriers: Lack of knowledge about career pathway opportunities: Even a possibility

Barriers: Potential student Misconceptions: Females unable to physically do the job

Barriers: Potential Student Misconceptions: Messy & Dangerous environment

Barriers: Potential Students: Lack of childcare options

### **Overall Participation of Non-Trads (F&S)**

Overall participation: Very few/low

Overall Participation: Increasing, not great but ok

Overall Participation: Unsure

Overall Participation: More than I would have guessed

### **Participation of Other Non-Trads (Students)**

Know of other non-trad students

Don't know any other non-trads in programs

### **Increasing Participation – Recruitment Cycle Ideas (All)**

Increasing Participation: Recruitment idea: See females in marketing

Increasing Participation: Recruitment idea: See other females in the program

Increasing Participation: Influence agent: CTE Teacher Impact during recruiting

Increasing Participation: Hands-on experience for potential students during recruiting

Increasing Participation: Earlier recruitment for non-trads: Elementary and middle

Increasing Participation: Involve families in the recruitment

### **Targeted Nontrad Recruiting Strategy: Is There One? (F&S)**

Strategy: Not defined – but intentional usage of non-trad students in marketing/recruiting

Strategy: Unsure: Needs improved

Strategy: Yes and no: Have a Nontrad advisor

### **Negative Persuasion –By Tech Center (Students)**

Negative persuasion: No – actually, positive

Negative persuasion: No

Negative persuasion: Yes: At Sending School: Counselors

### **Most Popular Program (F&S)**

Most Popular – Welding

Most Popular – Carpentry

Most Popular – Auto Service

Most Popular – Aviation

Most Popular – Unsure

### **Why? (F&S)**

Most Popular: Why: Familiarity with program/Content

Most Popular: Why: Not sure

Most Popular: Why – Different opportunities within the career path

Most Popular: Why – Less physically demanding

Most Popular: Why: Trends with careers in general and people wanting to flip houses.

Most Popular: High wages

### **Student Experience – During Program (Students)**

Student Experience: Uncomfortable at first, only female, classmates skeptical

Student Experience: Misunderstood or stereotyped due to being female in a male world:

Student Experiences: Must work harder than the guys to prove myself

Student Experience: Be mindful of your attire and messages

Student Experience: (+) Very welcoming environment in Tech Center

Student Experience: (+) Teacher positive influence/impact

Student Experience: (+) Treated equal as men

Student Experience: (+) Evolved positive Family support

Student Experience: (+) Positive feedback from people outside the Tech Center

**Non-Trad Resources Availability and Ideas (Students)**

Resources: Don't know of any available

Resources: Non-trad counselor available

Resources: Idea: Support group of female non-trads

Resources: Idea: Childcare on campus to help single mothers

Resources: Idea: Someone (Faculty/staff/Counselor) to check on the non-trads

Resources: Idea: Would like exposure to females working in the field (Mentor)

**The Student Experience – How can we help Students? (F & S)**

The Student Experience: Provide a mentor for support

The Student Experience: Share out success stories

## APPENDIX F

### University of Oklahoma Approved Signed Consent to Participant in Research Form

#### Signed Consent to Participate in Research

**Would you like to be involved in research at the University of Oklahoma?**

I am Josh Shandy from the College of Education, and I invite you to participate in my research project entitled Gender Inequality In Career And Technical Education: Women In Nontraditional Trade And Industry Programs. This research is being conducted at {[enter the research site](#)}. You were selected as a possible participant because of your experience and insight into the nontraditional student pathways within CTE. You must be at least 18 years of age to participate in this study.

**Please read this document and contact me to ask any questions that you may have BEFORE agreeing to take part in my research.**

**What is the purpose of this research?** The purpose of this research is to understand the gender equality gap for nontraditional women students at metro area technology centers within Oklahoma through the perspectives of the participants and stakeholders. By exploring the problem of practice, I hope to identify and recognize potential barriers and ultimately discover practical, real-world solutions to promote change for this underserved population. As a scholar-practitioner, the conclusions drawn from this study will heighten awareness of the gender inequality phenomena and help shift paradigmatic stigmas within the CTE system.

**How many participants will be in this research?** About eight counselors, faculty, and staff will participate in this research. Further, about ten nontraditional adult female students from traditional trade and industry study programs will participate in this research.

**What will I be asked to do?** If you agree to be in this research, you will conduct a face-to-face interview lasting an hour at maximum. The interview will ask questions about your experiences and insight into the nontraditional student phenomenon.

**How long will this take?** Your participation will take up to an hour through a single face-to-face interview. There will be no expectation of further involvement beyond the single interview.

**What are the risks and/or benefits if I participate?** As inherent with any research involving humans, risk is always possible. The risk associated with this study is considered minimal but present. Areas for potential risk include: Employment risks for staff (audio recordings), Social risks for students (audio recordings), and Physical risks (face-to-face data collection for observations or in any situation where there is direct contact with the research participant).

The benefits to participation would be that your direct and relevant experience within this phenomenon could potentially lead to breakthroughs in removing barriers to entry for nontraditional students into the traditionally male-dominated programs of study. This increase in enrollment could lead to better financial opportunities and shifts in social dynamics for a traditionally underrepresented population.

**Will I be compensated for participating?** You will be reimbursed for your time and participation in this research at the conclusion of the interview. A \$10 food gift card will be distributed upon completion of our interview.



IRB NUMBER: 15675  
IRB APPROVAL DATE: 03/08/2023

**Who will see my information?** In research reports, there will be no information that will make it possible to identify you. Research records will be stored securely and only approved researchers and the OU Institutional Review Board will have access to the records.

You have the right to access the research data that has been collected about you as a part of this research. However, you may not have access to this information until the entire research has completely finished and you consent to this temporary restriction.

**Do I have to participate?** No. If you do not participate, you will not be penalized or lose benefits or services unrelated to the research. If you decide to participate, you don't have to answer any question and can stop participating at any time.

**Will my identity be anonymous or confidential?** Your name will only be retained or linked with your responses if you specifically agree to be identified. Please check all of the options that you agree to:

I agree for data records to include my identifiable information.  Yes  No

I agree to being quoted directly.  Yes  No

I agree to have my name reported with quoted material.  Yes  No

I agree for the researcher to use my identifiable data in future studies.  Yes  No

**What will happen to my data in the future?**

After removing all identifiers, we might share your data with other researchers or use it in future research without obtaining additional consent from you.

**Audio Recording of Research Activities** To assist with the accurate recording of your responses, interviews will be recorded on an audio recording device. You have the right to refuse to allow such recording without penalty.

I consent to audio recording.  Yes  No

**Will I be contacted again?** The researcher might like to contact you to gather additional data or recruit you into new research.

I give my permission for the researcher to contact me in the future.  Yes  No

**Who do I contact with questions, concerns or complaints?** If you have questions, concerns or complaints about the research or have experienced a research-related injury, contact me at

Josh.W.Shandy@ou.edu or my cell phone at [REDACTED]. For further assistance, you can contact my advisor and chair, William Frick, at Frick@ou.edu.

You can also contact the University of Oklahoma – Norman Campus Institutional Review Board (OU-NC IRB) at 405-325-8110 or [irb@ou.edu](mailto:irb@ou.edu) if you have questions about your rights as a research participant, concerns, or complaints about the research and wish to talk to someone other than the researcher(s) or if you cannot reach the researcher(s).

*You will be given a copy of this document for your records. By providing information to the researcher(s), I am agreeing to participate in this research.*



Participant Signature	Print Name	Date
Signature of Researcher Obtaining Consent	Print Name	Date
Signature of Witness (if applicable)	Print Name	Date

