A Narrative Inquiry of Male Teachers Working with Female Students in Gender Non-Traditional Career, Technical, and Agricultural Education (CTAE) Programs

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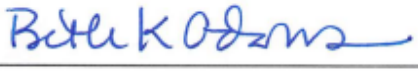
Signature 

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ABSTRACT

This study utilized narrative inquiry to examine the experiences of four male teachers to understand conditions supporting or inhibiting girls' participation in gender non-traditional career preparation programs at the secondary level. I expanded on previous literature by highlighting factors influencing recruitment and retention in non-traditional programs by utilizing teachers' stories to describe how they helped their female students find success. The intersection of two primary theoretical frameworks, constructivism, and career development theory, provided a foundation for understanding how personal and school-related experiences influenced male teachers and female students as they interacted in the classroom. Data collection methods included interviews following Seidman's (2013) three interview series, a classroom observation utilizing a climate audit checklist, and the review of several related documents. Data analysis revealed four significant themes, including (1) reinforcing equality with the subtheme of safe spaces, (2) structures supporting equity, (3) femininity accentuating soft skills, and (4) mentoring relationships while cultivating role models. Participants promoted equality and equity in the classroom by ensuring resources were accessible, and the environment was favorable for female students. Additionally, participants confirmed that female students could produce the same results as their male peers regardless of their prior knowledge by differentiating instruction and recognizing the benefits of feminine soft skills, which help female students stand out from their male peers. Participants also worked to develop positive relationships to grow female role models who can encourage the next generation of non-traditional female students, supporting an increase in enrollment and retention in secondary school programs.

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ACKNOWLEDGEMENTS

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I dedicate this dissertation to my parents, Kenneth and Norma Koetz.
You gave me the best parts of you – a love for God, a desire to learn, and the understanding that anything worth doing is worth doing well.

Chapter I

Introduction

Girl brain, boy brain. Scientists have found few reliable differences between the physical characteristics in the brains of boys and girls (Eliot, 2010). Sadker and Koch (2016) asserted, "greater educational differences exist *within* the genders than *between* genders" (p. 63). Even with myriad research available, scholars have debated gender differences for decades. Since ability differences in an average group of young children start small (Eliot, 2010), accounting for preferences impacted by gender, such as academic choices and career interests, warrants a deeper investigation. Why, for example, did one of my sons prefer dinosaurs to dolls? Why did he say he wanted to be an astronaut and not a nurse at his kindergarten graduation? Eliot (2010), an associate professor of neuroscience, suggested examining environmental and social factors because "abilities develop in a social-cultural context that includes each child's opportunities, relationships, sense of identity, and more" (p. 33). Kollmayer et al. (2018) noted that children adjust their behaviors to fit within cultural norms established by parents, schools, and different forms of media. Reflecting on my son's choices, how did what he saw at home and learned at school impact his early thoughts on academic and career choices?

Pink collar, blue collar. Growing up, children often realize they can be anything they want. Societal changes, including a more unbiased view on gender roles, a decreasing gender gap in college attendance and graduation, and an increase in the number of women entering the workforce, support this claim from a gender equity standpoint (Charles & Grusky, 2004). But while these gains appear as gains in society at large, inside the workforce differs, as men and women frequently forge different career

paths. How many women mechanics have you seen at the local car dealership? How many male teachers work at the local elementary school? Charles and Grusky (2004) proffered a deep structure to sex segregation, making it a practical long-term feature of modern economies. Even as pressure to equalize men and women in other domains exists, this occupational divide identifies gender non-traditional career fields for men and women. In a non-traditional area, such as construction or nursing, less than 25% of the individuals employed in each occupation or field of work are from one gender (Georgia Department of Education [GDOE], n.d.-c). The divide, however, is more significant for women (Hegewisch & Baris, 2020). This divide is true in terms of both vertical and horizontal segregation. Men are in the most desired positions in manual and non-manual occupations, relegating women to non-manual fields (Charles & Grusky, 2004).

Gender gap, career prep. In Georgia, career preparation at the secondary level is the responsibility of teachers in the Career, Technical, and Agricultural Education (CTAE) program at each school. Career preparation programs and career guidance availability affect the careers students ultimately enter after graduation. Therefore, teachers at the secondary level must acknowledge the importance of gender equity in non-traditional programs to provide positive experiences for their female students. Williams (2016) argued various complicated conditions lead to gender segregation within career technical education programs. Engebretson (2015) noted that students bring their gendered knowledge and experiences into the classroom daily, and teachers are no different. To close the gender occupational gap for women, issues affecting non-traditional program selection and classroom instruction, specifically the experiences of exemplary teachers producing positive change, must be explored more thoroughly.

Statement of the Problem

Although Title IX of the Education Amendments Act of 1972 protects women from discrimination under any education program or activity receiving federal financial assistance, fewer than 2% of plumbers and 3% of electricians are women (Schiffer, 2016). Historically, Career and Technical Education (CTE) programs (vocational education) segregated students based on race, gender, socioeconomic status, or disability into school programs with little hope for economic prosperity (Advance CTE, 2018). Schools disproportionately enrolled women and girls in programs with traditionally lower-paying jobs (Field, 2018). For example, as the National Association of Women in Construction reports, "In 2014, the Bureau of Labor Statistics reported 9,813,000 people working in the construction industry. Of these, 872,000 of them, or 8.9%, were women" (Perry-Sizemore & MacLaughlin, 2021, para. 15). The same Bureau of Labor Statistics (BLS) report indicates only 0.5% of roofers, 0.7% of brick masons, and 1.6% of pipelayers, plumbers, pipefitters, and steamfitters were women (Perry-Sizemore & MacLaughlin, 2021, para. 15).

The gender occupational gap in the United States (U.S.) is massive. It continues to persist as a dominant characteristic of the labor market (Hegewisch & Hartmann, 2014), with 2010 U.S. Census Bureau data reporting one primary gender filled nearly 80% of all jobs (Fluhr et al., 2017). Currently, fields dominated by men employ only 7.1% of women (Hegewisch & Baris, 2020). This national workforce trend mirrors Georgia's secondary CTAE programs. Although there are many benefits for individuals wishing to pursue a career considered non-traditional for their gender, program enrollment and completion rates of female students in gender non-traditional high school CTAE

programs in Georgia are consistently lower than male students (GDOE, n.d.-e). The number of female students enrolled in automotive technology, welding, or engineering, for example, does not equal the number of males enrolled in courses such as nursing or early childhood education. In 2019, only 20.08% of female students enrolled in Georgia's CTAE courses were enrolled in a non-traditional pathway program, and only 13.37% of females completed pathway programs in a non-traditional field (GDOE, n.d.-e). Alternately, 21.16% of male students enrolled in Georgia's CTAE courses were enrolled in a non-traditional pathway program, and 24.39% of males completed pathway programs in a non-traditional field the same year (GDOE, n.d.-e). While program enrollment and completion rates have risen for both genders between 2017 and 2018, female students continue to lag behind their male counterparts in both areas (GDOE, n.d.-e).

Career preparation programs must change as perpetuating gender norms undermines women's earning potential and contributions to the workforce (Ray et al., 2018). Female-dominated occupations tend to offer fewer benefits in salary and overall earning potential (Fluhr et al., 2017). Occupational separation by gender harms the economy as workers are not matched to jobs based on their skills, limiting workforce productivity and growth (Washington Center for Equitable Growth [Equitable Growth], 2017). It also limits workforce expansion because individuals may be unwilling to seek or accept jobs in growing markets based on their perceived gender career roles (Equitable Growth, 2017). The occupational gender gap impacts the workforce because available jobs are unfilled, and gender career segregation perpetuates the wage gap between men and women (Equitable Growth, 2017). Non-traditional career fields also lack diversity, negatively impacting productivity and the work environment (Sharma, 2019).

Identifying and promoting strategies to reduce barriers to female non-traditional career program enrollment and retention at the secondary level is needed to counteract these issues. These barriers and strategies, especially those occurring within the classroom, may help close the gender occupational gap by providing more equitable access to and positive experiences in training programs before individuals enter the workforce.

Purpose

This study aimed to explore the attitudes of four male professional career and technical educators to better understand the conditions supporting or inhibiting female students' participation in non-traditional career pathway programs at the secondary level. Phillips and Imhoff (1997) noted while many factors contribute to student career selection, teachers directly influence students interested in non-traditional career choices at the school level. Moreover, teachers of female non-traditional career pathway programs, such as those who instruct courses in the trade and industry fields, are often White males (Williams et al., 2018).

Research Questions

The following research questions guided this study:

RQ1: What are the experiences of the male professional career and technical educators of gender non-traditional career pathway programs in Georgia secondary school districts with an exemplary record of teaching female students and preparing them for high-wage, high-skilled, and in-demand jobs?

RQ2: How do educator attitudes toward education and gender equity affect the development of equitable non-traditional programming and response strategies in Georgia school districts?

RQ3: What organizational practices did exemplary male CTAE teachers responsible for gender non-traditional career preparation programs in Georgia secondary school districts utilize when recruiting and retaining female students for technical, trade, and industry jobs?

Significance of the Study

The gender occupational gap is not closing, and society denies women equal representation in various career fields (Hegewisch & Hartmann, 2014). This inequality is demonstrated by only five overlapping occupations when comparing the 20 most common occupations for women and 20 most common occupations for men (Hegewisch & Baris, 2020). Despite information confirming the existence of gender workplace equity issues and legislation supporting gender equity designed to eliminate these issues, the gender composition of many occupations classified as primarily men or women has changed very little in the last 40 years (Hegewisch & Hartmann, 2014).

While the government protects women from discrimination under Title IX of the Education Amendments Act of 1972, schools disproportionately enrolled women and girls into programs resulting in traditionally lower-paying jobs (Field, 2018). As a result, female students in gender non-traditional high school CTAE programs in Georgia are underrepresented in many technical, trade, and industry fields (GDOE, n.d.-e). Thus, I sought to explore the attitudes of the male professional career and technical educators to

understand better the conditions supporting or inhibiting females' participation in non-traditional career pathway programs at the secondary level.

This study may help male CTAE teachers of non-traditional female programs and teachers in general, especially teachers of CTAE programs, meet the demands of teaching CTAE students. School district personnel responsible for administering CTAE programs and state educational agencies accountable for meeting federal targets for CTAE programs may also benefit from this study. Federal agencies responsible for setting policy on CTE programs related to state and school district CTE funding may also find this study helpful.

Under Perkins V legislation, the CTAE division of the Georgia Department of Education (GDOE) uses Perkins funds to prepare students for high-skill, high-wage, or in-demand jobs. One aspect of this preparation includes supporting students preparing for fields non-traditional for their gender as measured by Core Indicator 4S1: Non-traditional Program Concentration (GDOE, n.d.-f). Each school system receiving Perkins funds must meet the state target for this indicator or develop an improvement plan. Areas of improvement are addressed in the local level's Consolidated Local Needs Assessment (CLNA). This study's findings may offer an enhanced understanding of the conditions supporting or inhibiting females' participation in pursuing non-traditional career pathway programs at the secondary level to determine the overarching needs and root causes of gender equity issues. In turn, the information may assist in selecting action steps designed to support teachers as they improve classroom practices to increase non-traditional enrollment and retention rates.

This study may help CTAE leaders and teachers close the gender occupational gap in non-traditional high school career preparation programs. Closing the gender gap may also increase the number of non-traditional female students entering post-secondary non-traditional career programs and non-traditional career fields. Increasing enrollment in non-traditional female programs may positively influence economic and social issues. Students transitioning from school to the workforce may increasingly pursue careers based on aptitude and interest rather than traditional gender-stereotyped work roles. Businesses and industries connected to non-traditional career fields may recruit and hire qualified candidates regardless of gender. A more diverse workforce may increase productivity as female non-traditional team members add value in terms of varied perspectives and social sensitivity (Bohnet, 2016).

Conceptual Framework

Experiential Knowledge. Maxwell (2013) identified four sources to construct a conceptual framework: a researcher's experiential knowledge. From this knowledge, a researcher can use personal interests and goals, shaped by identity and positionality, to determine why a research topic is needed and as a starting point for how the research might be framed (Ravitch & Riggan, 2017). As a CTAE director and supervisor over the last ten years, I have managed and supported several programs serving students considered non-traditional based on gender. Working in a secondary school, I interact with teachers and students in these programs. I have observed classrooms, monitored enrollment numbers, and attended workshops on non-traditional barriers and support strategies. In that time, I have seen non-traditional enrollment and completion numbers remain low at my school. I question why more non-traditional students are not enrolling

in non-traditional programs. First, I have considered the counselors in my school do not effectively advertise classes or counsel students about non-traditional career opportunities when conducting course registration meetings and selecting a study program. Second, I have considered teachers may not actively recruit non-traditional students because they do not want to, do not know how to, or do not believe it is a priority. Third, I believe non-traditional students do not enroll in these courses based on their own established gender stereotypes. Policymakers must make changes at the state and local levels to reduce the gender occupational gap as students prepare for careers at the secondary level.

Theory and Research. Maxwell (2013) identified existing theory and research as a second way to develop a conceptual framework. More specifically, Ravitch and Riggan (2017) identified the need to use topical research to increase intellectual knowledge and theoretical frameworks to establish connections between pieces of knowledge as integral components of a conceptual framework. I used the intersection of two theories in this study to formulate how student-teacher interactions affect non-traditional CTAE preparation programs. Constructivism is an educational theory connected to CTAE teachers as they provide relevant and authentic tasks to make learning meaningful (Doolittle & Camp, 1999). Career development theory, specifically Gottfredson's (1996) circumscription and compromise, are connected to non-traditional students as they make career choices. These two theoretical perspectives framed how personal and school-related experiences influenced male teachers and female students in non-traditional CTAE programs. A secondary theory, liberal feminism, was also included to remove gender biases and stereotypes through legislation and purposeful action in educational institutions and the workplace (Acker, 1987).

Methodology

A narrative inquiry methodological approach fits this study's purpose and research questions because it examines human lives through stories (Patton, 2015). Huber et al. (2013) indicated researchers use narratives to gather teachers' stories to research teacher knowledge and practice elements. Collecting the stories of exemplary male CTAE teachers allowed for a more in-depth exploration of teacher attitudes and experiences. In this study, exemplary teachers consistently recruit and retain higher than average percentages of non-traditional female students in their career preparation programs as measured by Perkins Core Indicators of Performance. I used purposeful sampling to select participants who have successfully worked with female non-traditional CTAE students at the secondary level in Georgia. Data collection methods included interviews with participants, observations, and a review of documents. Narrative inquiry analysis was a priority during the data analysis process to ensure teacher stories were not decontextualized into small pieces but focused on re-telling stories while establishing social meaning and significance (Clandinin & Connelly, 2000; Kim, 2016).

Limitations

The limited sample size and the geographic region limited the scope and transferability of this study. The sample size was limited to four teachers, limiting my ability to generalize the conclusions beyond the case, setting, or group to other people, locations, and times (Maxwell, 2013). The sample used for this study included only male CTAE teachers in Georgia at the secondary level. I did not include teachers at the middle school level or in post-secondary programs such as those at a technical college. The narrow scope of this research limited the study's transferability to other institutions

focused on career preparation or similar programs in other states. It also did not account for female teachers who might teach in a non-traditional female area. The study also did not address student perspectives.

Another possible limitation of this study was the reluctance of participants to speak freely during interviews. Also, participants' perspectives of observations, or their reservations about being observed, limit data collection. In qualitative research, potential limitations include distorted responses, incomplete or inaccurate documents, and researcher bias (Patton, 2015).

Chapter Summary

The gender occupational gap is extensive and consistently underrepresents women in technical, trade, and industry fields. The researcher explored the experiences of the exemplary male professional career and technical educators of non-traditional female career pathway programs in Georgia secondary school districts to understand better the types of equitable non-traditional programming and response strategies needed to increase female participation in these programs. Constructivism, career development theory, and liberal feminism supported the theoretical framework for this study. Narratives of the life and professional experiences of male career and technical educators were collected using a narrative inquiry method. This study's findings may help male CTAE teachers of non-traditional female programs and other CTAE programs as they meet the demands of teaching CTAE students. The results may also help school district personnel responsible for administering CTAE programs and state educational agencies accountable for meeting federal targets for CTAE programs. Federal agencies responsible

for setting policy on CTAE programs related to state and school district CTAE funding may also benefit from this study's results.

In Chapter II, I provide an examination of the current literature. The literature review contains an overview of occupational segregation and its contribution to occupational segregation in the U.S. It also chronicles the purpose of CTE at the national and state level. It highlights legislative efforts to reduce gender discrimination in educational institutions and CTE preparation programs. It includes information on identified educational barriers females may encounter while attempting to enroll in and complete a non-traditional career preparation program and the strategies educators can use to help students overcome these barriers. It also focuses on research highlighting ways to improve local CTE programs to support non-traditional students and meet state and federal program standards. Finally, the researcher examines constructivism, career development theory, and liberal feminism, supporting the study's conceptual framework.

Definition of Terms

Barriers. Elements of a career preparation program or workplace that prevent individuals from participating in a non-traditional career. For example, if female students wanted to enter the computer science field but were not encouraged to enroll in the advanced science or mathematics courses needed to pursue such a career, an educational barrier would exist (National Alliance for Partnerships in Equity [NAPE], 2019).

Career Development Theory: A body of theory that has grown over the last 100 years used to explain how individuals make career choices. Although theories have evolved as times change and new information is available, career development theory is a foundation for career guidance (Gothard, et al., 2001).

Career Pathway: A sequence of three courses required for students to complete a study program in one of 17 career clusters identified by the Georgia Department of Education (GDOE, n.d.-d). For example, to achieve a welding pathway, students must complete the courses Industry Fundamentals and Occupational Safety, Introduction to Metals, and Welding I.

Career, Technical, and Agricultural Education (CTAE): In Georgia, career and technical education is designated CTAE. The goal of CTAE is to prepare "Georgia's students for their next step after high school-college, beginning a career, registered apprenticeships, or the military" (GDOE, n.d.-a)

Career and Technical Education (CTE): A collection of courses and programs developed to prepare students for current professions or those available in the future. CTE courses focus on technical and employability skills at the secondary level linked to academic skills (U.S. Department of Education [USDOE], 2019).

Comprehensive Local Needs Assessment: To be eligible to receive financial assistance through federal Perkins funds, each local school system must "conduct a comprehensive local needs assessment related to CTE and include the results of the needs assessment in the local application submitted to the state educational agency" (GDOE, 2019-b, slide 6). This needs assessment must be updated once every 2 years and is completed using stakeholder input to identify program strengths and weaknesses.

Constructivism: A theoretical construct centered on the belief individuals who actively construct knowledge and meaning when presented with new information learn best (Doolittle & Camp, 1999). A critical component of constructivism is to provide learning experiences in real-world settings where tasks are relevant and authentic to

contextualize learning (Ertmer & Newby, 1993), a core component of career and technical education.

Gender: Characteristics designating a person male or female. While sex refers to biology, gender is affected by different societal and environmental factors (Psychology Today, n.d.).

Gender Occupational Gap: The employment divide impacted by vertical segregation in which men are in the most desired positions in both manual and non-manual occupations, and horizontal segregation, in which women are relegated to non-manual fields resulting in less desirable jobs and lower wages for women in the workforce (Charles & Grusky, 2004; Schieder & Gould, 2016).

Gender Occupational Segregation: When one gender is "overrepresented or underrepresented among different kinds of work or different types of jobs," which likely "occurs more because of assumptions about what kinds of work different genders are best suited for than because of an efficient allocation of innate talent" (Equitable Growth, 2017, para. 1-2).

Liberal Feminism*:* Historical liberal feminism focused on women's rights to participate in public life and worked to end the practice of women being legal dependents of their male guardians. Current liberal feminism focuses on many of the same issues such as supporting changes in labor laws and focuses on social issues including education and healthcare. Everyday liberal feminism is also considered more inclusive in its support of all women, including women of color and those in the LBGTQ community (Ackerly, 2001).

Non-traditional Career: A career in which less than 25% of the individuals employed in each such occupation or field of work are from one gender (GDOE, n.d.-c)

Non-traditional Career Preparation Programs: A career and technical education program designated non-traditional is one in which 25% of the individuals employed in each such occupation or field of work are from one gender. In Georgia, career preparation programs based on areas in which females are underrepresented include pathways in the following career clusters: Architecture and Construction; Transportation, Distribution, and Logistics; and Science, Technology, Engineering, and Mathematics (STEM) (Turner & Snyder, n.d.).

Perkins V: Signed into law in 2018, The Strengthening Career and Technical Education for the 21st Century Act (Perkins V) was a bipartisan measure reauthorizing the Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV). Its passage signified Congress's commitment to providing approximately $1.3 billion annually for CTE programs for youth and adults in the U.S. (USDOE, n.d.-a).

Program of Study: A program of study is developed for each career pathway in Georgia to help students navigate different program requirements and opportunities. Programs of study include academic courses (including those required for graduation), a CTAE sequenced career pathway, the corresponding End of Pathway Assessment for career credentialing, dual enrollment options, and post-secondary program recommendations (GDOE, n.d.-d).

STEM Occupations*:* Careers involving science, technology, engineering, and mathematics. The majority of STEM occupations are focused on computers, followed by

engineers and drafters, but also include occupations in the life and physical sciences (Fayer et al., 2017).

***Strategies**:* Educational institutions or individual teachers use techniques to help female students overcome barriers to pursuing a non-traditional career. For example, a secondary school might offer a mathematics summer camp for female students designed to build confidence and competency in the subject area (NAPE, 2019).

Trade and Industrial Careers: These careers encompass jobs from areas such as construction, transportation, manufacturing, and service industries (Careers in Trades CA, 2018). While some jobs in this career field require minimal ability or training, the majority of jobs fall in the category of skilled trades, which require post-secondary training or the completion of an apprenticeship program (Olsztynski, 2015).

Title IX: Federal law enacted to prevent injustices and provide protections for all students by ensuring "No person in the United States shall, based on 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" (USDOE, n.d.-b, para. 2).

Chapter II

Literature Review

This literature review explores female non-traditional occupational segregation issues, focusing on individual, societal, and educational factors influencing career selection. The researcher shed light on the current practice of perpetuating gender norms in career preparation programs, undermining women's earning potential and contribution to the workforce (Ray et al., 2018; Schieder & Gould, 2016). The literature review indicates a need for this study based on previous research on occupational segregation in the workforce related to educational initiatives and teaching strategies, specifically within career and technical education (CTE) programs. Search terms used during the research process included CTE, vocational education, occupational segregation, gender stereotypes, gender segregation, gender equity, wage gap, career development, career counseling, and non-traditional careers. Databases used for these search terms included EBSCOhost, ProQuest, Educational Resources Information Center (ERIC), Georgia Library Learning Online (GALILEO), and Google Scholar.

The literature review begins with an overview of occupational segregation, mapping factors contributing to the rise, fall, and stall of different forms of gender occupational segregation in the U.S., including the influence of occupational stereotypes on segregation. Second, it chronicles the purpose of CTE at the national and state levels and the different legislative efforts designed to reduce gender discrimination in educational institutions and CTE preparation programs. Third, it includes information on identified educational barriers females may encounter while attempting to enroll in and complete a non-traditional career preparation program and strategies educators can use to

help students overcome these barriers. The researcher also highlights evidence-based strategies to improve local CTE programs to support non-traditional students and meet state and federal program standards. Finally, I examine constructivism, career development theory, and liberal feminism, which support the study's conceptual framework.

Occupational Segregation

The dominance of men in technical, trade, and industry careers occurs internationally (Struthers & Strachan, 2019). The low percentage of women working in fields like construction in Australia, Canada, India, and other European countries mirrors the low numbers of those working in similar areas in the U.S. (Struthers & Strachan, 2019). Occupational segregation by gender in the U.S. decreased in the late 20th century, but the decline stalled at the beginning of the 21st century (del Rio & Alonso-Villar, 2015). Female numbers in non-traditional fields are so low that Levanon and Grusky (2016) noted that eradicating this type of segregation in the U.S. would require over half of working women to relocate to a different occupational category altogether.

Historically, gender segregation increased until 1960 and decreased over the next 40 years (del Rio & Alonso-Villar, 2015). del Rio and Alonso-Villar (2015) attributed this decrease to the women's movement of the 1970s, which resulted in more women entering the workforce with degrees and the coinciding political pressure placed on gender equality. As the women's movement's goal included reworking "societal notions of femininity and removing gender associations from tasks," gendered language in the workforce decreased, and the number of women entering male-dominated professions increased (Akerlof & Kranton, 2000, p. 735). To determine current segregation trends

around gender and racial lines, del Rio and Alonso-Villar compared the distribution of 12 target groups across occupations to the occupational structure of the U.S. economy. Measuring the segregation between groups allowed for assessing the differences between social groups regarding employment and income overall and revealed segregation by gender is higher than segregation by race and ethnicity (del Rio & Alonso-Villar, 2015). Segregation significantly decreased for women from 1940 until 1980, decreased slightly from 1980 until 1999, and stopped in 2000, and in no period did women reach a neutral position in the labor market (del Rio & Alonso-Villar, 2015).

Charles and Grusky (2004) argued research related to determining causes of gender occupational segregation in the workplace tends to be unidimensional based on the theorist. They posited early feminists, for example, viewed occupational sex segregation as the result of "patriarchal forms of social organization" allowing men to dominate women and focused on "the extent of segregation rather than its many dimensions and their differential responsiveness to egalitarian forces" (Charles & Grusky, 2004, p. 13). Additionally, when accounting for the smaller types of segregation within the large social classes of segregation typically studied, the nuances of segregation hinder occupational segregation's improvement because they are not explicitly studied or understood (Levanon & Grusky, 2016). For example, while women made up almost half of the labor force in 2015, they only accounted for 28% of science and technical fields workers. Women in scientific fields have a strong representation in life and social sciences, but not in more specialized areas like physical science or engineering (Thébaud & Charles, 2018).

To better understand these issues, Levanon and Grusky (2016) suggested the need to distinguish between the sources of essentialist, horizontal, and vertical segregation within occupations to combat their effects on the workforce. Those with essentialist views believe men and women have different interests and skills (Charles & Grusky, 2004; Levanon & Grusky, 2016). For example, society often perceives women as social and nurturing while men are strong and analytic (Levanon & Grusky, 2016). Essentialism stresses the difference between men and women. This perception leads to actions based on explicit stereotypes (Nürnberger et al., 2016). Vertical segregation signifies how men are employed in the best positions in both manual and nonmanual occupations based on the idea of male primacy (Charles & Grusky, 2004). This segregation occurs because people assume men are more "committed and competent" than their female counterparts in the workforce and deserve the most desired positions (Levanon & Grusky, 2016, p. 576). When reinforced in society, this stereotypical view leads women to self-select occupations considered gender traditional or settle for less-than-optimal positions in a non-traditional field (Levanon & Grusky, 2016). While courts address vertical segregation through laws and labor policies and practices, essentialist segregation persists (Charles & Grusky, 2004; Levanon & Grusky, 2016). As essentialism is difficult to eradicate (Levanon & Grusky, 2016), it contributed to the stall in reducing segregation noted by del Rio and Alonso-Villar (2015) as gains contribute to the reduction in vertical segregation.

Stereotypes and Gender Segregation

As humans respond to stimuli, they simplify it by processing information via categorization; and these categorized perceptions, based on social characteristics such as

age, race, or gender, often lead to stereotypes (He et al., 2018). Personal experiences lead to the acquisition of stereotypes, but they are also a part of a "society's collective knowledge" as assumptions about people or groups are established and shared (White & White, 2006, p. 259). More specifically, gender stereotypes reflect different expectations, attitudes, and personality traits of a given sex deemed socially acceptable within a culture (Song et al., 2017). Even if not done so overtly, explicit stereotypes enhance socialization within a society (White & White, 2006). But implicit stereotypes may also develop as explicit stereotypes shape individuals, even if individuals find a clear stereotype untrue and reject it (White & White, 2006). Thus, there is a link between direct and implicit stereotypes to gender-based occupational stereotypes.

An occupational stereotype emerges as an individual learns more about a particular job. This stereotype sets personal expectations for the type of people who do the work and whether it suits a specific individual (He et al., 2018). Gender stereotypes bias how people understand their likes and abilities (Thébaud & Charles, 2018). Understanding occupational stereotypes are essential to combat occupational segregation because occupational stereotypes impact career choices (He et al., 2018). If left unchecked, occupational stereotypes may support the development of "preconceived notions about individuals and social groups" lacking logic or a basis in reality, which affects the types of people who pursue specific careers (He et al., 2018, p. 2). Occupational stereotypes not only impact career choice but also may influence career satisfaction. Although "classic economic theory does not provide a direct link between occupational stereotypes and job satisfaction," women in traditionally male jobs are often

less satisfied with their job than those working in traditionally female jobs; but more satisfied in terms of income (Janssen & Backes-Gellner, 2011, p. 36).

Bias Influences on Gender Stereotypes

One of the main ways individuals process and categorize career information is through the lens of gender (He et al., 2018). While there have been efforts to improve gender equity in all aspects of society, occupational stereotypes based on gender are still evident (He et al., 2018; Struthers & Strachan, 2019). Researchers often use Likert scales to measure explicit occupational gender stereotypes on which participants classify jobs as masculine, neutral, or feminine. Conversely, implicit occupational gender stereotypes are measured using an Implicit Association Test (IAT). The rapidness of response to a job and a gender measure the strength of a person's gender stereotype for a particular occupation (White & White, 2006). Fleming et al. (2020), Nürnberger et al. (2016), and White and White (2006) examined implicit stereotypes connected to career choices of children and adults.

White and White (2006) conducted a study of 156 university students to measure explicit and implicit gender stereotypes to understand better how implicit stereotypes impact occupational gender stereotypes. In this quantitative study, the researchers used engineers, elementary school teachers, and accountants as the sample occupations. They found the association between the male gender for engineers and the female gender for elementary school teachers was consistent in explicit and implicit tests. Accounting, however, was found to be implicitly perceived as a masculine job, even though the number of accountants who are women exceeds the number of accountants who are men in the workforce. Learning more about implicit stereotypes allows educators and other

stakeholders to learn how a person truly "feels about someone performing a job versus what they think or what they are willing to express" (White & White, 2006, p. 265). Therefore, it can help educators better support students' career choices.

Learning more about implicit stereotypes also allows educators to examine their teaching and guidance practices more deeply to help students select future careers. Nürnberger et al. (2016) examined the influence of implicit and explicit math-language stereotypes and essentialist beliefs on secondary school teacher placement of students. Using a paired sample *t*-test, the researchers investigated the extent to which preservice teachers provided tracking recommendations linked to the gender of the targeted student. Nürnberger et al. found the results consistent with their prediction that, on average, participants recommended females as more likely for a language-oriented secondary school (M = 3.37, *SD* = 50) while they recommended males as more likely for a math/science-oriented school (M = 3.54, *SD* = .53), $t(129) = -2.30$, $p = .02$, $r = .16$, $d = .33$. As such, educational leaders and educators should consider explicit and implicit bias factors impacting the tracking of students, both in academic courses and career selection, because tracking "can play a critical role in every educational system" (Nürnberger et al., 2016, p. 167).

Media Influences on Gender Stereotypes

There are countless occupations where men and women are equally employed, and some careers, such as accounting, have seen women take the lead. However, an occupation's historical composition or portrayal in media may provide a different perception (White & White, 2006). Media influences include newspapers, magazines, advertising, search engine results, blogs, other online content, television film, and music

(Cheryan et al., 2013; Puchner et al., 2015). Puchner et al. (2015) indicated while society and how elements of society are portrayed in the media influence each other, media as a whole does play a role in "perpetuating damaging master narratives" about race and gender (p. 25). Cheryan et al. (2013) noted when selecting a college major, students review the required classes and options for employment after graduation and consider the types of people currently working in the field to determine if they belong there and could be successful.

In determining the extent to which gendered media representations about computer scientists hindered women from pursuing STEM careers, Cheryan et al. (2013) conducted a study of 54 university students from two different institutions. Students were randomly assigned to read one of two fake news articles. One article proclaimed geeks still dominated computer science, and the other stated the opposite. Students wrote a summary of the article and then revealed their interest in computer science. Using a 2 x 2 ANOVA, there was a marginal Stereotypicality x Gender interaction found, $F(1, 50) = 3.60 = p = .06$, as women were significantly less likely to express an interest in computer science after reading the stereotypical article ($M = 1.53$, $SD = 1.25$) compared to the non-stereotypical article ($M = 3.20$, $SD = 2.43$). Simultaneously, there was no difference in men's interest in computer science after reading either article (Cheryan et al., 2013).

Kay et al. (2015) argued the increasing amount of online information has contributed to career stereotyping, as algorithms and interfaces used to find information can also be biased when seeking career information. Kay et al. examined four separate studies to investigate stereotype exaggeration, systematic over-/under- representation, qualitative differential representation, and perceptions of occupational search results

using images produced in search of different careers. In the fourth study on perceptions of gender proportions in occupations, the researchers found prior exposure to manipulated search results in which gender proportions were skewed resulted in a slight change in participants' perceptions of gender proportions in the direction of the manipulation (Kay et al., 2015). Kay et al. noted that it is essential to consider balance when addressing these stereotype issues. Accurate search results, in which image results display men and women in proportion to their actual employment in a career field, may not always support socially desired outcomes for equity. For example, an image search for the word 'welding' using Yahoo! on March 21, 2021, produced the first clear image of a female welder as the 79th image on the page. Since men dominate welding in the workforce, this is an accurate representation, but it does not support the desired outcome of decreasing gender occupational segregation in the welding profession.

Value and Goal Influences on Occupational Stereotypes

Weisgram et al. (2010) defined occupational values as "desires one most wants to be fulfilled within a career," highly regarded by one gender over another. Males typically seek jobs with high salaries, where they can have power or influence over others, or where they can experience risk or challenges, whereas females often seek jobs allowing them to help others, improve their knowledge and skills, and have time for family (Weisgram et al., 2010; Weisgram et al., 2011).

He et al. (2018) conducted two studies to determine how occupational stereotypes predict race and gender segregation in the workforce. Using the Stereotype Content Model (SCM), the first study of 1,157 U.S. residents examined occupations based on SCM's warmth and competence stereotype content dimensions. Using U.S. national labor

statistics, the second study tested how occupational and demographic associations impacted occupational segregation. Regarding gender segregation, He et al. (2018) found "women are segregated into occupations characterized as highly warm but less competent" (p. 13). This research supports the essentialist view that women are more nurturing and better suited for careers where warmth and caring are desired (Levanon & Grusky, 2016). It also supports the idea of vertical segregation in which men are considered more competent (Levanon & Grusky, 2016).

Barth et al. (2015) expanded research into the leaky pipeline phenomenon, when women drop out of STEM college programs faster than men, resulting in a shortage of qualified workers in the STEM field. As members of The Alabama STEM Education Research Team, Barth et al. reviewed data collected from 200 undergraduate students enrolled in entry-level STEM courses at a large public university in the Southeastern U.S.. They used this data to test their hypothesis that gender, occupational stereotypes, and goal affordances affect occupational preferences. The authors developed the *Life Goals and Gender Stereotypes* instrument, incorporating a 2 (Gender Stereotype: masculine vs. feminine) x 3 (Goal Affordance: helping vs. family-friendly vs. salary) within-subjects design. The researchers found the interaction of the three-goal affordance factors was most significant for women. It did not, however, support the idea of women being more interested in masculine occupations if they provided communal goals, including the factors of being family-friendly and helping-related, salary goals, $M = 3.02$, over helping, or family goals, M's = 2.76, 2.76, p's <.001, d's = .53, .54. Their findings supported other research suggesting men are more pressured to conform to traditional gender role norms but did not support the idea pressure comes from the need for prestige

and pay, $p < .001$, $d = 3.21$. On average, men did not prefer higher-paying feminine jobs over lower-paying masculine ones (Barth et al., 2015).

Occupational Stereotypes and Hiring Practices

Stereotypes not only influence career selection but hiring practices as well. Thébaud and Charles (2018) asserted one condition leading to an unequal labor market is employers with a "taste for discrimination" who are willing to pay higher wages to obtain members of a preferred group (p. 3). Employers using gender stereotypes that bias their hiring practices exemplify an essentialist presumption perpetuating gender occupational segregation (Levanon & Grusky, 2016). Even if women elect to pursue a non-traditional career, it may be challenging to find employment if they do not fit the traditional occupational stereotype associated with the job (Rice & Barth, 2017). Women seeking work in a non-traditional career are referred to as gender misfits because their gender does not align with the sex make-up or stereotypical gender attributes connected to the job (Yavorsky, 2019).

Yavorsky's (2019) study analyzing early hiring practices used two gendered occupational dimensions to investigate hiring practices and inequality in the workforce. The first dimension was sex composition, which included whether males or females predominately held jobs. The second dimension was gendered stereotypes, the masculinized or feminized characteristics of job advertisements. Yavorsky conducted correspondence audits of white-collar résumés ($N = 3,044$) and working-class résumés ($N = 3,258$) to over 3,000 job advertisements. She found the odds of a female applicant receiving an initial call back for a working-class job with a masculinized job ad was 38% (=(1 – exp(0.28 -0.75)) x 100) lower than males. The white-collar audit showed no

gender differences in callbacks when female applicants applied to advertisements with masculine terminology. In this study, the masculinized working-class jobs used were manufacturing and maintenance/janitor positions (Yavorsky, 2019), and both occupations fell into the trade and industry field.

A study of 282 university students enrolled in an introduction to psychology course was conducted to determine the role of gender stereotypes on hiring decisions (Rice & Barth, 2017). Rice and Barth (2017) examined the "interaction between the activism of gender role stereotypes, explicit gender role beliefs, and occupational stereotypes" in hypothetical hiring situations (p. 98). In measuring work-related skills ratings, hiring decisions, and gender role traditionalism, they determined participants who belonged to the group completed stereotype-incongruent priming before the tasks presented more positive candidate evaluations.

Occupational Segregation and Career Education

While occupational segregation is embedded in cultural gender stereotypes, other social, structural, and institutional influences on female non-traditional career selection are repeated numerous times in the literature. From the social-psychological standpoint, cognitive skills and self-efficacy play a role (Gweinner, 2017). Female students must believe they can succeed in a career based on their ability, especially if the career is non-traditional (Lufkin et al., 2007). Structural effects, such as individual factors, family relationships, and educational backgrounds influence career choices (Gweinner, 2017). Students interested in non-traditional careers often determine if a career is a good fit based on feedback from peers, educators, or parents (Hamilton et al., 2015).

Institutional processes, including demographic changes and access to educational opportunities, also impact career choices (Gweinner, 2017). The National Alliance for Partnerships in Education (NAPE, 2019) provided information on approaching social-psychological, structural, and institutional elements as root causes of occupational segregation in career preparation programs considered non-traditional for female students. For this review, I focused on how student-teacher interactions in the non-traditional career education classroom impact non-traditional program recruitment and retention. I explored these elements in four categories contextualized as educational barriers and strategies.

Purpose of Career Technical Education

The U.S. currently has over 7 million unfilled jobs (USDOE, n.d.-a). Career technical training programs provide high school graduates opportunities to prepare for those positions by offering pathways to high-wage, high-skilled, and in-demand jobs (USDOE, 2016). There is no national system to link secondary education to the workforce, and CTE "is a nonsystem built upon a series of ad hoc efforts begun in 1962 to address education for the workplace" (Stone III, 2017, p. 155). Even with no national program in place, CTE programs were available in 98% of public high schools nationwide in 2016-2017 (USDOE, 2018). Federal funding has been provided for these programs since 1917 with the introduction of the Smith-Hughes Act (USDOE, n.d.-a). In the past, students enrolled CTE programs were often segregated based on race, gender, socioeconomic status, or disability (Advance CTE, 2018). However, there has been a transition from vocational education that targeted low-income students from traditionally

marginalized groups to CTE, now focused on preparing all students for college and careers (Kim et al., 2021).

Current CTE is a pathway to the middle class for all students. In 1973, 72% of jobs offered needed a high school education (or less), while only 34% of today's jobs require the same minimum education level (Bottoms & Sundell, 2016). Simultaneously, jobs requiring a bachelor's degree have risen from 16% to 36%, and those requiring at least an associate's degree have gone from 12% to 29% (Bottoms & Sundell, 2016). Career technical education fills the education gap, providing students with the necessary skills for good- or middle-wage jobs.

The most recent legislation connected to CTE at the national level, the Strengthening Career and Technical Education for the 21st Century Act (Perkins V), was enacted in 2018 (USDOE, n.d.-a, para. 1). While there is a need for CTE programs, overall enrollment in these programs has declined recently (USDOE, 2013). The National Center for Education Statistics reported that public high school graduates' average number of career technical education credits fell from 4.3 to 3.6 between 1990 and 2009 (USDOE, 2013). As of 2013, students graduating from public high schools earned an average of 26.7 credits, with only 2.6 courses in a career technical field (USDOE, 2019, para. 2).

Experts attending the Institute for the Future workshop in March 2017 predicted around 85% of jobs students will be doing in 2030 have not yet been invented (Institute for the Future, 2017). While CTE typically prepares students for jobs not requiring a college degree, the current economy needs more of these programs (Gewertz, 2018). Though still offering traditional career programs such as welding and plumbing, many

current CTE programs focus on programs connected to associate and bachelor degrees such as engineering and finance and are more academically rigorous than those offered in the past (Gewertz, 2018).

The shift to a more robust CTE program supports the need to provide opportunities for students who do not want to pursue a four-year college degree but need additional post-secondary training to succeed. The economic shift of the new labor market, including continuing advancements in technology, also supports this change (Gewertz, 2018). Mainland (2019) stated, "teaching students how to learn, relearn, and unlearn will set them up with the skills to thrive in the workforce of the future" (para. 15). Teaching these skills requires high schools to support a well-rounded program linking traditional college-preparatory courses with the hands-on application of academics to real-world problems found in CTE courses (Gewertz, 2018). Mainland also noted students need to focus not only on skills related to a particular degree but also on hard and soft skills designed to help them evolve within a changing economy to be successful.

Career, Technical, and Agricultural Education in Georgia

In Georgia, CTAE refers to Career, Technical, and Agricultural Education. CTAE courses at the secondary level in Georgia provide students with technical, embedded academic, and employability skills. These courses help students find relevance in learning, regardless of what they choose to do after high school (GDOE, n.d.-a). At the secondary level, Georgia offers 130 different pathway options within 17 identified career clusters (GDOE, n.d.-a). The 17 career clusters include Agriculture, Food, and Natural Resources; Architecture and Construction; Arts, AV/Technology, and Communications;

Business, Management, and Administration; Education and Training, Energy; Finance; Government and Public Administration; Health Science; Hospitality and Tourism; Human Services; Information Technology; Law, Public Safety, Corrections, and Security; Manufacturing; Marketing; Science, Technology, Engineering, Mathematics (STEM); and Transportation, Distribution, and Logistics (GDOE, n.d.-a).

Secondary schools offer non-traditional programs based on underrepresented genders in the following areas: Architecture and Construction; Education and Training; Health Science; Transportation, Distribution, and Logistics; and Science, Technology, Engineering, and Mathematics (STEM) (Turner & Snyder, n.d.). Programs considered non-traditional for females include Architecture and Construction, Science, Technology, Engineering, Mathematics (STEM), and Transportation, Distribution, and Logistics. Programs considered non-traditional for males include Education and Training, Health Science, and Human Services (Turner & Snyder, n.d.).

From 2009 to 2019, Georgia has reported an enrollment anywhere from 60.28% to 67.88% in its CTAE programs (GDOE, n.d.-e). During those years, there has been a slight increase in enrollment for all CTAE programs, and enrollment in non-traditional programs has also experienced a slight increase. The lowest non-traditional enrollment number reported in recent years occurred in 2012, with only 17.63% of students enrolled in programs meeting the non-traditional criteria (GDOE, n.d.-e). By 2019, the number had risen to 21.16% (GDOE, n.d.-e). When separated by gender, only 20.08% of female students enrolled in Georgia's CTAE courses in 2019 were in a non-traditional pathway program compared to 22.18% of male students enrolled in non-traditional classes the same year (GDOE, n.d.-e).

Legislation Impacting CTE Preparation Programs

Kim et al. (2021) identified three phases of legislation impacting CTE programs. From 1917 to 1963, Phase One included the transition from vocational education to CTE, based on preparing students for careers mainly in agriculture, industrial trades, and home economics. From 1984 to 1998, Phase Two was considered the age of 'new vocationalism' designed to keep up with the changing labor market, which demanded academic skills, including literacy. Phase Three, from 2001 to 2018, included the shift from labor to education policy. This shift, a result of federal legislation like No Child Left Behind (NCLB) and the Every Student Succeeds Act (ESSA), included a push for a focus on equity and required programs to review program-level data to "identify previously unidentified disparities and to adjust course" (Kim et al., 2021, p. 361). I describe the legislation enacted within these phases below.

The Smith Hughes Act of 1917

The first federal legislation impacting vocational education was the Smith Hughes Act of 1917, which provided federal funds for states. It required establishing a state board for vocational education, separating funds for vocational teacher salaries, and segregating students receiving vocational training from traditional academic instruction (Hayward & Benson, 1993). Since then, there have been many changes in vocational education, including the shift in terminology to career technical education.

The Vocational Education Act of 1963

The Vocational Education Act of 1963 required states to designate funds for "(a) training for persons who had completed or left high school or (b) construction of area vocational school facilities, or both" (Hayward & Benson, 1993, p. 11). The Act also set

aside funds for experimental programs to meet the needs of students in "economically depressed communities, who [had] academic, socioeconomic, or other handicaps that prevent[ed] them from succeeding in regular vocational education programs" (Hayward & Benson, 1993, p. 11). Thus, the act began providing protections for marginalized groups.

Legislation Impacting Women in CTE Preparation Programs

Title IX of the Educational Amendments of 1972 barred educational programs from receiving federal funds from participating in discriminatory activities based on sex (Annexstein, 2003). In 1976 and 1977, 84.7% of students in career technical programs connected to low-wage careers, such as home economics, were female; but 88.7% of students related to technical career programs were male (Annexstein, 2003). Based on this data, the U. S. Department of Education issued specific guidelines for CTE programs prohibiting discrimination in recruiting, career counseling, admissions, or treatment of students due to a nationwide pattern of sex segregation in those programs (Annexstein, 2003).

Amendments to the Vocational Education Act of 1963

The social objectives of the 1963 Act, combined with the Civil Rights Act of 1964 and 1972, which focused on race and sex discrimination, resulted in two amendments to the Vocational Education Act of 1963, in both 1968 and 1976 (Hayward & Benson, 1993). In 1976, Congress amended the 1963 Act to overcome sex discrimination and sex stereotyping in occupations and improve women's access to higher-earning professions (Nanda et al., 2018). This amendment was the first step in tackling gender segregation, specifically in CTE (Nanda et al., 2018).

The Educational Amendments of 1976 included a request from Congress to conduct a national assessment of the state of vocational education. The evaluation led by the National Institute of Education "gave a generally gloomy picture of [the] implementation of vocational-technical legislation" (Hayward & Benson, 1993, p. 14). The assessment drew attention to three main points: the ambiguous and conflicting requirements included in the federal legislation, the small size of the federal grants compared to the required objectives, and the fact "disadvantaged populations were grossly underrepresented in the more demanding programs that offered good prospects for career employment" (Hayward & Benson, 1993, p. 14). Thus, it solidified the need for a transformation in vocational education practices.

The Carl D Perkins Vocational Education Acts

The 1984 Carl D. Perkins Vocational Education Act (Perkins I) improved the quality of vocational programs to promote economic growth and assure access to individuals in special populations previously disadvantaged (Hayward & Benson, 1993). Perkins also increased funding for an equity coordinator. It also set aside 3.5% of federal vocational-education funds for programs to foster gender equity in vocational education and 8.5% of funds to provide services for single parents and displaced homemakers (Annexstein, 2003).

The federal government reauthorized the Carl D. Perkins Vocational and Applied Technology Education Act in 1990 (Perkins II). Focused on making "the United States more competitive in the world economy by developing more fully the academic and occupational skills of all segments of the population," it affirmed the need to integrate vocational and academic education and make closer connections between school and

work (Hayward & Benson, 1993, p. 17). This Act required 3% of federal funds for gender equity programs and 7% for programs to support single parents and displaced homemakers and states receiving funds to increase access to career guidance, childcare, transportation, mentoring, and job training (Annexstein, 2003). The act was reauthorized again in 1998 and known as Perkins III.

The Carl D. Perkins Technical Education Act of 2006 (Perkins IV) emphasized program improvement and accountability more than previous versions and concentrated on performance measures tied to programs of study (Bragg, 2017). Perkins IV continued to provide for state career technical programs and expanded definitions of career technical education to move beyond vocational education's limited scope. It required states to offer programs of study that included sequenced courses focused on integrating rigorous academic content and career technical skills leading to industry-recognized credentials (Hamilton et al., 2015). Perkins IV requires the creation of state and local improvement plans when Local Education Agencies (LEAs) do not meet targets set for Core Indicators of Performance related to non-traditional participation (6S1) and non-traditional completion (6S2) rates (Nanda et al., 2018).

President Trump signed The Strengthening Career and Technical Education for the 21st Century Act on July 31, 2018. It is known as Perkins V (USDOE, n.d.-a). In terms of non-traditional programs, Perkins V is similar to Perkins IV. While some changes impact program implementation, the law focused on program improvement and accountability (Association for Career and Technical Education [ACTE], 2018). Perkins V introduced "a comprehensive local needs assessment that requires data-driven decision-making on local spending, involves significant stakeholder consultation, and

must be updated at least once every two years" (ACTE, 2018, para. 3). It also modified the Core Indicators of Performance from Perkins IV by consolidating the two measures focused on non-traditional students into one indicator, 4S1 (ACTE, 2018).

Barriers and Strategies for Female Students in Non-Traditional CTE Programs

Interactions between students and teachers in non-traditional CTE classrooms impact program recruitment and student retention. These interactions result in different barriers for non-traditional students and strategies to overcome them.

Access and Equity

While federal laws such as Title IX prevent discrimination based on gender, access is still an issue for students seeking to enroll in a non-traditional career preparation program (Lufkin et al., 2007). While not limited by the opportunity to register due to federal regulations and oversight, access to non-traditional education programs is impacted by what Freeman (n.d.) coined the null environment hypothesis. This hypothesis "states that an academic situation that neither encourages nor discourages students of either sex is inherently discriminatory against women because it fails to consider the differentiating external environments from which women and men students come" (para. 22). Betz (1989) argued when educators neither encourage nor discourage women, who already hear negative messages regarding non-traditional occupations and gender roles, passive discrimination occurs. Thus, recruitment efforts targeting the right target audience are needed to decrease passive discrimination and increase female participation in non-traditional programs (Milgram, 2019).

Milgram (2019) argued having good intentions does not always translate into action. Recruiting women to a non-traditional program in the same manner as men do not

always work; therefore, a female-focused recruitment campaign is needed (Milgram, 2019). Lufkin et al. (2007) suggested presenting career pathway programs by aligning them with student interest and eliminating biased recruitment materials focused on gender-traditional norms. As prospective students receive information on pathways, the use of gender-inclusive language also deserves emphasis. Meeting the needs of students considered non-traditional requires gender-inclusive language because gender-neutral language is ineffective in targeting specific populations (Illinois Center for Specialized Professional Support [ICSPS], n.d.).

Negative and stereotypical portrayals of non-traditional occupations in the media may limit student access to programs and perpetuate gender biases hindering equity (NAPE, 2019). Cheryan et al. (2013) noted when selecting a college major, students at the university level compared themselves to the type of people currently involved in the career field to help them decide if they would be a good fit and could find success. The way a group is portrayed in the media influences this self-comparison (Cheryan et al., 2013). NAPE (2019), therefore, advocates for students to learn critical media literacy (CML).

Puchner et al. (2015) conducted a mixed-methods study on CML lessons exposing occupational gender stereotypes on middle school students' beliefs about women in the workplace. Participants included 264 middle school students with five seventh-grade classes in the treatment group. They received CML lessons between pre-and post-survey. They responded to a questionnaire using a Likert scale on how they agreed or disagreed with statements regarding gender occupational stereotypes. Five eighth-classes were in the control group and received the pre- and post-survey but no lessons. Following the

survey, the researchers interviewed four seventh-grade students. Puchner et al. reported students in the treatment group indicated a change in their beliefs from the pre- to post-survey, especially in their disagreement with statements regarding media portraying female scientists and mathematicians an equal amount to men. Moreover, Puchner et al. found that these students did not believe media influenced their future career choices.

Access to programs is also supported by providing appropriate role models, which may help students eliminate gender stereotypes associated with careers (Lufkin et al., 2007). Students must see a career as an option for their gender before considering it an opportunity for themselves (Olson, 2013). Educators cannot guarantee exposure to non-traditional gender role models for children and adolescents; therefore, providing access to counterstereotypical role models as early as possible helps reduce career bias based on gender (Lufkin et al., 2007; Olsson & Martiny, 2018). Counterstereotypical role models provide non-traditional career role models working in non-traditional fields at the most basic level. Introducing these role models through media resources or in-person guest speakers and mentors will only be successful if they are relevant to their audience (Olsson & Martiny, 2018). Olsson and Martiny (2018) conducted a literature review on counterstereotypical role models and their ability to influence females' gender stereotypes and career choices. They found that students exposed to counterstereotypical role models must envision themselves in the position held by the role model to develop the self-efficacy needed to reduce gender stereotypes related to career choices.

While a quantitative study by Hayes et al. (2017) determined exposure to female role models in STEM fields may increase interest, other studies did not always reach this same conclusion. Weisgram and Bigler (2006) surveyed 617 middle school girls

attending an Expanding Your Horizons (EYH) program designed to increase their interest in science by exposing them to female scientists while participating in science activities. While the EYH program focused solely on female scientist presenters, using the hypothesis that female role models reduce participants' stereotyping of science as a masculine profession, Weisgram and Bigler noted this did not appear to be the case. As a result, Hayes et al. suggested pairing role models with explicit conversations about stereotypes and occupational segregation may be more beneficial.

While counterstereotypical role models may support young women visualizing themselves in a nontraditional field, a limited number of women currently in the field is a complication. Gerstmann and Denton (2021) called this "a 'chicken and egg' dilemma." If these career fields lack gender and racial diversity, there are few role models to encourage a new generation of diverse workers. If diverse workers are not recruited to the field, how can they serve as role models to recruit the next generation? Thus, Gerstmann and Denton suggested increasing diversity in post-secondary programs, specifically graduate engineering programs feeding into STEM fields. These individuals are often recruited for managerial positions with mentoring duties.

Academic Proficiency and Support

Female students have consistently performed well in reading and writing courses, whereas historically, males have outperformed females in mathematics and science (National Center for Education Statistics, 2000). Reporting on current science and engineering indicators, the National Center for Science and Engineering Statistics (2018) referenced schools administering the National Assessment of Educational Progress (NAEP) exams to fifth-grade students in 2017. There was only a slight difference

between male and female scores on the NAEP mathematics exam, with males performing minimally better and no statistical difference between male and female scores on the science exam. Males slightly outperformed females on the eighth-grade mathematics exam the same year (National Center for Science and Engineering Statistics [NAEP], 2018). While male and female students earn the same number of math and science credits, Corbett and Hill (2015) noted male students are more likely to take and outscore females on advanced placement exams in engineering and computing. Additionally, female students are more likely to report they dislike math or science, with response percentage differences between males and females in grades 4, 8, and 12 noted as statistically significant in a report released by the National Assessment of Educational Progress (NAEP, 2015). Understanding many female students do not express a fondness for math and science courses, which impacts their self-efficacy or the belief they can succeed in a career based on their ability, should be considered by teachers in non-traditional programs (Lufkin et al., 2007).

Allison and Cossette (2007) reviewed literature and practices to recruit women into STEM careers for the National Science Foundation. While interest in a career field is necessary, interest alone does not push female students to investigate non-traditional jobs, especially in STEM fields. In a literature review created based on findings of non-traditional occupations from the first phase of the U.S. Department of Labor's Employment and Training Administration contract with IMPAQ International, LLC, Nanda, et al. (2018) reported teachers must recognize their attitudes, beliefs, and behaviors impact the attitudes and beliefs of non-traditional female students in their classrooms. So, while enrollment and achievement gaps are closing in math and science,

female students should continue to be encouraged to participate in advanced math, science, and technology courses. These serve as an entry point to participate in non-traditional careers (Lufkin et al., 2007). If they are not encouraged to participate, female students may miss early engagement opportunities with future career options that are high-skill and in-demand (Lufkin et al., 2007). In addition to encouraging students to take challenging courses, female students should be prepared "for the negative aspects of high-status, traditionally male careers including stress, scheduling, and physical demands" (ICSPS, n.d., p. 4). In summary, a focus on student self-efficacy tied to academic and career-related instruction is needed to support female students seeking employment in non-traditional career fields.

Curriculum, Instruction, Culture, and Climate

While curriculum and instructional practices may serve as barriers to female students in many different academic classrooms, those are enhanced in non-traditional classrooms (Lufkin et al., 2007). Nanda et al. (2018) conducted a literature review on non-traditional education. They noted underrepresented women and minorities in STEM programs have significantly lower graduation rates due to curriculum and instruction issues. Dropouts only widen the occupational gender gap in these fields because of the underrepresentation of women in non-traditional programs such as STEM. Teachers should review the course curriculum for the types of people represented in non-traditional areas when selecting textbooks, creating recruitment or teaching displays, and showing videos of individuals at work, as students who see themselves in the curriculum can either reinforce or break stereotypes tied to different career options (Lufkin et al., 2007). Additionally, teachers should make plans to ensure classroom spaces and access to

differentiated work materials are not an issue, as changing rooms or equipment sizes need to meet male and female student needs (ICSPS, n.d.)

Considering the differences between male and female students and the changing student enrollment demographics requires a change in pedagogy and structural awareness (Ray et al., 2018). Male and female students often prefer to learn differently (Lester et al., 2017). Konrad et al. (2000) examined sex differences and similarities in job attitude preference, indicating that women value interpersonal relationships, specifically those tied to working with people, opportunities to help others, and making friends. This connection is essential to note because it influences instructional practices. Lester et al. (2017) stated male students often demonstrate comfort when an instructor is authoritative and serves as an expert. Many female students seek classrooms focused on collaboration and interaction, which leads to opportunities to build relationships. Teachers not recognizing these differences may provide instruction that does not meet the needs of non-traditional students enrolled in their programs (Lester et al., 2017).

Students must enter a safe, welcoming environment to excel academically and build the skills and experiences they need in the workplace (Estes & McCain, 2019). If students elect to enroll in non-traditional career courses, classroom culture and climate factor in student success (NAPE, 2019). Andrus et al. (2018) revealed classroom bias against female students exists because females tend to "receive less attention from their teachers, hear more comments about their appearance than their academic skills, and often receive less and lower-quality feedback than boys" (p. 47). Focusing on active gender consciousness, "recognizing that gender is a crucial part of any individual's

identity" and "gender is present in every interaction we have as social beings," is key to supporting non-traditional student success (Andrus, 2018, para. 4).

Teachers must also focus on gender equity. Equity involves advocating for fairness within institutions, such as acknowledging and addressing stereotypes limiting students' potential (Waterford.org, 2020). Focusing on equity helps lead organizations to gender equality, and "students will be free to pursue their education without fear of discrimination or harassment because of their gender" (Waterford.org, 2020, para. 5). While teaching methods are essential, gender consciousness helps engage students by eliminating gender bias, stereotypes, and other barriers in the classroom programs connected to non-traditional occupations (Andrus et al., 2018).

Gender microaggressions may negatively influence the classroom climate in a non-traditional program, creating an unfavorable environment (Lester et al., 2017). According to Lester et al. (2017), "microaggressions are subtle insults commonly directed to an individual associate with a particular group" (p. 68). Personal biases of teachers instructing students in non-traditional pathways and the personal biases of traditional students enrolled in the program often contribute to microaggressions. Even if biases are not explicit, implied biases can impact classroom climate and instruction, negatively impacting the career choices of female students (Andrus et al., 2018). Students may also experience role strain when their teachers and peers minimize their contributions to the course based on their perceived gender roles, which negatively impacts the relationships gender minority students establish early in their programs (Folami, 2017).

Lufkin et al. (2007) explained female "students are not likely to persist in an instructional environment where their contributions are not valued, they are being harassed, or they feel they are being treated unfairly" (p. 435). Students experiencing sexual harassment while enrolled in non-traditional courses may ultimately select a more traditional career route (NAPE, 2019). Gender and career choice, the value placed on care in the classroom, and the support shown for multicultural and diverse identities influence students' interaction with the teacher and other students (Ray et al., 2018).

Eberly et al. (2007) noted teacher dispositions influence student learning and development. Specifically, Phillips and Imhoff (1997) noted teachers directly affect females interested in non-traditional career choices in an educational setting. To ensure such influence is positive, teachers must understand stereotypes and perceive learning how to overcome them not as a burden added to their workload but as an asset in pursuing equity (Northrop, 2003).

Sharp-Grier (2022) suggested using positive micro-messaging to combat microaggressions in CTAE classrooms. Sharp-Grier highlighted NAPE's micromanaging strategies related to people and environment, including role models, program materials highlighting diversity, and policies and practices such as setting high standards. Educational organizations should use positive micro-messaging to promote positive messages to marginalized communities. As female students may encounter non-traditional careers for the first time within the walls of a school, Ray et al. (2018) proposed CTE classrooms are the perfect places to dismantle traditional patriarchal power structures and male-dominated careers.

One way to reduce microaggressions and harassment in the classroom may be to provide an all-female class for non-traditional career preparation programs. Walsh and Wright (2020) reported the results of an informal research study in which Walsh, one junior high school technology and engineering teacher, advertised an all-male and an all-female technology and engineering class and mixed gendered classes. Students could sign up for any course, and while the curriculum for both courses was the same, they advertised the course as all-female, focused on assignments geared toward female interests. After collecting observational data throughout the year, Walsh and Wright reported that students in the all-female class were more creative and more fully solved problems presented with higher correctness rates or work. The authors also noted students in the all-female class had higher grades than in the mixed-gender classes, and female enrollment increased with an all-female class in the schedule (Walsh & Wright, 2020).

Counseling and Career Guidance

Making occupational choices is included as a part of most secondary school programs. However, counselors focus solely on credit accrual for graduation and not on the future occupations of students must shift to consider elements of career development theory to design and implement a counseling program providing appropriate course and career guidance (Bromberg & Theokas, 2016). One method of specific counseling focused on career preparation is group career construction. Maree (2019), a Department of Educational Psychology at the University of Pretoria in South Africa, used a mixed-methods study to examine the benefit of group career construction counseling for students transitioning from high school to post-secondary programs of study. Participants,

28 males and 29 females in grade 11, at an independent school in Mbombela, South Africa, were given the Career Interest Profile to solicit qualitative career-related information. The Maree Career Matrix and the Career Adapt-Abilities Scale-South Africa to gather quantitative data. A mixed-methods intervention study design providing group-based interventions captured conversations to help participants identify values, themes, and career patterns and share and reflect on their career stories. Deductively derived themes included career concern, control, curiosity, and confidence. Maree developed five themes: self-reflection, reflexivity, action orientation, enhanced self-awareness, and appreciation. The most significant pre-and post-test difference was in career concern, which highlighted the model's effectiveness in helping students approach their futures with hope and optimism, increasing their willingness to set goals and plan for a career. Maree noted females may have benefitted more than males from the career counseling intervention. As the intervention aimed to promote the equality of females and males, it specifically emphasized that females now had access to many careers previously considered males, such as electricians and engineers.

Hamilton et al. (2015) noted that a decentralized education system in the U.S. often leads to noticeable differences in services and resources between states and school systems, including counseling and program offerings. In Georgia, the BRIDGE Act, signed into law in 2010, mandates counseling and regularly-scheduled advisement for all middle and high school students (GDOE, 2011). While Georgia schools receive resources to support career guidance and a checklist of tasks to fulfill the law requirements, local systems retain implementation flexibility. No specific condition for the exploration of non-traditional fields exists. Counselors assist students in investigating

careers based on their interests and aptitudes to help them set goals as they choose a future career path (GDOE, n.d.-b). The Georgia Department of Education (GDOE) contracted with YouScience in 2017, which offers a web-based aptitude and interest inventory program to help school systems meet the BRIDGE law requirements (Tagami, 2017).

However, Lufkin et al. (2007) argued aptitude and interest inventories might promote student biases toward non-traditional careers. Jodry and Armstrong (2010) also supported this idea by cautioning counselors using feminist career counseling against the use of oppressive systems such as aptitude or ability tests for career selection. Counselors were encouraged to remember "individual stories hold as much value as quantitative testing" (Jodry & Armstrong, 2010, p. 5). Counselors' personal beliefs and attitudes may also support traditional gender career roles, leading to biased career recommendations (Hamilton et al., 2015). Thus, different modes of career counseling combined with unbiased career advisement materials are needed for student recruitment into non-traditional fields.

Counseling is not limited to guidance office staff activities and happens inside CTAE classrooms as teachers prepare students for careers connected to a program of study. The GDOE develops programs and provides help to students, counselors, teachers, and parents to join academic and CTAE coursework to postsecondary and career options (GDOE, n.d.-d). Teachers, especially in non-traditional fields, should integrate specific counseling related to non-traditional fields (Turner & Snyder, n.d.). This particular type of counseling can prepare students to identify and develop the personal qualities and educational qualifications needed to succeed in areas not previously considered and still

relatively unknown (Nadeem & Khalid, 2018). Like counselors, teachers must conduct a self-assessment to ensure their values and beliefs about careers do not reflect biases during advisement activities (Olson, 2013). Teachers can also involve parents in the career advisement process and should do so, as parents strongly influence students when selecting postsecondary programs and making career selections (Lufkin et al., 2007; Olson, 2013). Nanda et al. (2018) noted little evidence on which specific parental support strategies were best but emphasized positive family-student-school engagement addressed many non-traditional career barriers.

When listing five recommendations for increasing the diversity of undergraduate STEM programs, Estrada et al. (2016) indicated underrepresented minority students were more likely to consider a career in science if students could connect see their values embodied in the scientific community. If the tasks required in a STEM field are associated with a student's personal and culturally valued outcomes, it can impact their motivation to pursue this type of work (Estrada et al., 2016). However, Gerstmann and Denton (2021) noted that many students are unaware of the shift of STEM careers from mass production manufacturing to new advances in technology and medicine. To ensure students consider these types of career fields, students need access to materials indicating a direct connection between "their studies, abilities, and desire for societal impact" (Gerstmann & Denton, 2021, para. 9).

Feedback Model for Program Improvement

Hayes et al. (2017) suggested occupational gender segregation is a cyclical process in which the next generation of workers “see and want to do what they are exposed to” (p. 786). If female students seeking non-traditional career pathways are

inundated with image issues, including loss of femininity or questionable sexuality, barriers will continue to perpetuate the cycle (Whitehead, 2001). Even if organizations share information regarding barriers and strategies with teachers and other educational leaders, schools are not guaranteed to meet the specific needs of female students seeking non-traditional careers. Educators must collect school-level data and feedback from stakeholders, including non-traditional teachers, students, and parents. Data collection may be done at the state level, as Estes and McCain (2019) presented when describing the process used by Delaware's State Board of Education. Following protocol, the Delaware Department of Education collects data to disaggregate and conducts stakeholder interviews to develop a plan for reducing equity gaps once they identify inequities. They may also complete a similar process at the local level by utilizing the CTAE Comprehensive Local Needs Assessment (CLNA) process that Georgia school systems must complete every two years as a part of the state-level Perkins plan. During this process, local systems must use data and stakeholder feedback to investigate CTAE programs in six areas for strengths and weaknesses: size, scope, and quality; labor market alignment; career counseling and guidance; recruitment, retention, and professional learning; and equity and access (GDOE, 2019-b). Once evaluated, they create a system improvement plan as many of the six areas identified in Georgia's process impact non-traditional career preparation programs; gaining feedback about programs and addressing barriers and strategies at the local level is ideal (GDOE, 2019-b).

Theoretical Frameworks

In the CTAE classroom, constructivist theory guides instructional practices. Career development theory guides student selection of CTAE preparation programs. How

male CTAE teachers view the intersection of constructivism and career development theory influences the identification of barriers and strategies supporting non-traditional female students. While not a primary framework, they also address concepts of liberal feminism as applied to female career selection and the workplace.

Constructivism

Teacher-Focused. Doolittle and Camp (1999) defined constructivism as the belief that individuals actively construct knowledge and meaning and learn best when presented with new information. Doolittle and Camp (1999) noted cognitive constructivism best fits the need of CTE because it recognizes knowledge "is the result of the accurate internalization and (re)construction of external reality" (para.19). Cognitive constructivism supports the idea that students must learn new knowledge and skills and adapt to practical needs as the world of work changes. Unlike cognitivists and behaviorists, who believe the world is external to the learner, constructivists believe what learners know about the world comes from how it is interpreted based on individual experiences (Ertmer & Newby, 1993). Therefore, at the center of constructivism, the student interprets experiences as an active learner while supporting a teacher who facilitates the learning process (Clark, 2018).

A critical component of constructivism is to provide learning experiences in real-world settings where tasks are relevant and authentic to contextualize learning (Ertmer & Newby, 1993). In CTE, teachers do not simply present information to students and expect students to learn; teachers utilize an instructional approach supporting an interactive relationship. Students can construct knowledge and self-regulate their learning process through various learning experiences (Doolittle & Camp, 1999). Learning experiences

supported in a constructivist instructional framework include authentic tasks, modeling, collaboration, and debate (Ertmer & Newby, 1993). Career and technical education teachers must utilize their personal and professional knowledge and experiences to create authentic and relevant classroom learning experiences. Students can make meaning of content and evaluate their learning success (Ertmer & Newby, 1993). In classrooms containing non-traditional female students, teachers must provide experiences for students to learn course content and frame experiences to support female students for the challenges they will encounter when entering a non-traditional workplace (ICSPS, n.d.). Teachers must accomplish these tasks while navigating educational mandates and guidelines imposed at the federal, state, and local levels.

Career Development Theory

Student-Focused. Gottfredson's (1996) developmental theory of circumscription and compromise describes career selection as children move through four different stages (Gothard et al., 2001). Gottfredson argued self-concept and occupational images impact a person's career preferences and perceptions, which allows for the development of occupations considered acceptable based on prestige and gender. From the list considered good, a person selects a career to pursue based on internal and external stimuli, becoming an occupational aspiration (Gothard et al., 2001). In conjunction with her theory, Gottfredson identified four life stages impacting occupational awareness and selection. In the second stage, orientation to sex roles, children begin to develop gender roles and establish stereotypes (Gottfredson, 1996).

In a literature review of social psychology research on counterstereotypical role models, Olsson and Martiny (2018) defined gender roles as "the expectation of what

conduct is appropriate for men and women based on the distribution of men and women in different roles" (p. 2). Nadeem and Khalid (2018) underscored that children begin to associate gender roles with occupations between six and eight. At this age, parents or guardians often serve as role models and influence their children's desires for career choices.

Gottfredson's final life stage, orientation to the unique internal self, begins around age 14 (Gottfredson, 1996). As adolescents, external influences such as peer social groups and media expand career knowledge and expectations (Nadeem & Khalid, 2018). Students may decide whether careers are right or wrong based on apparent or implied unfavorable messages from peers, educators, or parents (Hamilton et al., 2015). Influences aside, students will select careers matching their developed gender roles and avoid jobs that do not (Nadeem & Khalid, 2018). Students at this age, who may already face instability and uncertainty, are asked to select a pathway to graduation focused on college and careers (Gothard et al., 2001). In short, female students must evaluate several influences, including family expectations, societal norms, workplace stereotypes, and educational opportunities, to determine if non-traditional career program enrollment is viable. If a non-traditional career choice is selected, female students must feel encouraged and supported inside and outside the classroom to continue down the non-traditional career path (Lufkin et al., 2007).

Liberal Feminism

A primary goal of liberal feminism is to obtain equal opportunities for women (Acker, 1987). In liberal feminism, educational equality focuses on removing gender biases and stereotypes to ensure equal opportunities by changing views and attitudes

related to gender socialization and using legal processes to reduce discrimination (Acker, 1987). Workplace equality focuses on many of the same issues. Using a feminist lens means considering equity issues "from a perspective that includes the place and history of women in society and seeks equality between the genders" (Valenziano, 2008, para. 2). Feminist theory provides a unique perspective on equity and access in the workplace because it raises questions about "power relationships, unspoken rules, and the subterranean forces that guide work relationships" (Valenziano, 2008, para. 3). After all, gender is the primary identity role impacting workplace equity and access as it defines roles both in and outside the workplace (Valenziano, 2008, para. 3).

While conducting an integrative literature review to connect three aspects of feminist pedagogy to the career technical education classroom, Ray et al. (2018) stated, "changing where women feel accepted and integrated affects the programs women see as possibilities" (p. 95). Working toward the feminist goal of equal educational and workplace opportunities, women entering non-traditional career fields may help other girls and women consider the possibility of enrolling in preparation programs for careers traditionally identified as masculine in the future (Ray et al., 2018).

Bloom (2002-b) noted prioritizing women's stories is essential when examining something from a feminist perspective. Because the research process for the current study included only interviews of male teachers of non-traditional subjects, the stories collected in this study were not from the perspective of women. Therefore, the feminist theory was not the primary framework for this research. I did not interview students for this study; therefore, the feminist theory was not the best fit. Even though it was not the primary

theoretical framework, liberal feminist theory complements career development theory, explaining how gender stereotypes impact career choices.

Chapter Summary

This literature review began by highlighting factors contributing to the increase, decline, and leveling of gender occupational segregation in the U.S. The literature revealed occupational segregation impacts women in the workforce, especially in those technical, trade, and industry fields dominated by men. Two types of segregation classify occupational segregation by gender: horizontal (essentialism) and vertical (Charles & Grusky, 2004; Levanon & Grusky, 2016).

White and White (2006) linked occupational segregation to cultural career-focused stereotypes, explicitly and implicitly taught within a society. While there have been efforts to improve gender equity in all aspects of society, occupational stereotypes based on gender are still evident (He et al., 2018; Struthers & Strachan, 2019). Males typically look for jobs with high salaries, where they can have power or influence over others, or where they can experience risk or challenges. Females look for jobs allowing them to help others, improve their knowledge and skills, and have time for family (Weisgram et al., 2010; Weisgram et al., 2011). Even if women select to pursue a non-traditional career, it might be challenging to find employment if they do not fit the traditional occupational stereotype associated with the job (Rice & Barth, 2017).

The literature review also highlighted the purpose of CTE at both the national and state level. The researcher analyzed legislative efforts to reduce gender discrimination in educational institutions and CTE preparation programs. Since 1917, numerous laws have been passed to prohibit gender discrimination and support CTE programs, including Title

IX and several versions of the Perkins Vocational Education Act. Kim et al. (2021) identified three phases of legislation impacting CTE programs. Phase one focused on the transition from vocational education to CTE, phase two focused on 'new vocationalism,' and phase three focused on the shift from labor to education policy.

The literature review also included information focused on specific school-based strategies to mitigate educational barriers females may encounter while enrolling in and completing non-traditional career preparation programs. These barriers and strategies include access and equity, academic proficiency and support, curriculum, instruction, culture, climate, counseling, and career guidance. Access and equity include targeted women recruitment to non-traditional programs (Milgram, 2019) and counterstereotypical role models, women currently working in non-traditional fields that can serve as mentors (Olsson & Martiny, 2018). Academic proficiency includes understanding female self-efficacy toward math and science courses, often the gateway courses to many non-traditional careers (Lufkin et al., 2007). Curriculum, instruction, culture, and climate include understanding male and female students often learn differently. Therefore, differentiated instruction is needed to meet the needs of all students (Lester et al., 2017). It also includes teacher awareness of gender microaggressions, bias, and harassment within the classroom, inhibiting the success of female students (Lufkin et al., 2007). Counseling and career guidance include preparing students for careers connected to a program of study, which connects academic and CTAE coursework to postsecondary and career options (GDOE, n.d.-d).

In the final part of the literature review, the researcher examined constructivism, career development theory, and liberal feminism, which support the study's conceptual

framework. A critical component of constructivism is to provide learning experiences in real-world settings where tasks are relevant and authentic to contextualize learning (Ertmer & Newby, 1993). Career and technical education teachers must utilize their personal and professional knowledge and experiences to create authentic and relevant classroom learning experiences. Students can make meaning of content and evaluate their learning success (Ertmer & Newby, 1993). At Gottfredson's final life stage, students may ultimately decide which careers are right or wrong based on negative messages from peers, educators, or parents (Hamilton et al., 2015). Liberal feminism's focus on educational equality, where gender bias and stereotypes are removed, involves changing views and attitudes about gender socialization and legal processes reducing discrimination (Acker, 1987).

In Chapter III, I provide a detailed account of the study's methodology utilizing a qualitative research design. I describe the qualitative narrative inquiry design, which utilizes participant life stories. I also describe the procedures for participant selection, instrumentation and data collection processes, the methods of data analysis, and the elements of trustworthiness.

Chapter III

Methodology

The gender occupational gap is significant, and technical, trade, and industry fields lack female workers (Fluhr et al., 2017; Hegewisch & Baris, 2020). This national workforce trend mirrors enrollment in Georgia's secondary Career, Technical, and Agricultural Education (CTAE) programs. Although there are many benefits for individuals wishing to pursue a career considered non-traditional for their gender, program enrollment and completion rates of female students in gender non-traditional high school CTAE programs in Georgia are consistently lower than their male counterparts (GDOE, n.d.-e).

Career preparation programs must change as perpetuating gender norms undermines women's earning potential and contributions to the workforce (Ray et al., 2018). The occupational gender gap affects the workforce because available jobs remain unfilled, and gender career segregation perpetuates the wage gap between men and women (Equitable Growth, 2017). Non-traditional career fields also lack diversity, negatively influencing productivity and the work environment (Sharma, 2019). Identifying and promoting strategies to reduce barriers to female non-traditional career program enrollment and retention at the secondary level may help counteract these issues.

This study aimed to explore the attitudes of male career and technical educators to inform an understanding of the conditions supporting or inhibiting the participation of female students pursuing non-traditional career pathway programs at the secondary level. I used the qualitative research method of narrative inquiry to study the personal and professional experiences of male CTAE teachers in Georgia. The approach helped me

discover how these teachers connect their experiences to female students' education and career development in gender non-traditional programs.

Research Questions

The following research questions guided this study:

RQ1: What are the experiences of the male professional career and technical educators of gender non-traditional career pathway programs in Georgia secondary school districts with an exemplary record of teaching female students and preparing them for high-wage, high-skilled, and in-demand jobs?

RQ2: How do educator attitudes toward education and gender equity affect the development of equitable non-traditional programming and response strategies in Georgia school districts?

RQ3: What organizational practices did exemplary male CTAE teachers responsible for gender non-traditional career preparation programs in Georgia secondary school districts utilize when recruiting and retaining female students for technical, trade, and industry jobs?

In this chapter, I review the purpose of the study, the guiding research questions, and the study's design. I also describe the procedures for data collection and data analysis.

Research Design and Rationale

Qualitative research helps understand social experiences from the viewpoints of the people participating (Ary et al., 2019). Qualitative researchers explore the meaning individuals apply to social issues or problems (Creswell, 2014). Although qualitative research methods vary, they include collecting data in a natural setting using multiple

sources. The researcher is the main instrument of data collection and works to provide a "holistic account" or "complex picture of the problem or issue under study" (Creswell, 2014, p. 186). Qualitative researchers use participants' voices to report research findings (Creswell, 2014). Regardless of the qualitative method used, the qualitative research process focuses on an interest in context and meaning, which requires me to examine how people make sense of and interpret their own experiences (Ary et al., 2019).

Eberly et al. (2007) argued teacher dispositions, the penchant teachers have for responding in certain ways to specific circumstances, heavily impact student learning and development. Similarly, Phillips and Imhoff (1997) noted that while many factors contribute to student career selection, teachers directly influence students interested in non-traditional career choices at the school level. A qualitative study was appropriate for this research because collecting exemplary teachers' personal stories allowed for an investigation into how to increase female non-traditional enrollment and retention numbers in male-dominated CTAE career preparation programs.

Qualitative researchers study human behavior as it occurs naturally; therefore, data collection included interviewing educators who work directly with students enrolled in a non-traditional program in Georgia secondary schools. I used inductive data analysis because data collection and analysis were employed concurrently. This approach allowed me to reflect on what I saw and heard within the non-traditional program. I used this data to develop ideas about its meaning and then corroborate or discredit those ideas deemed barriers or successful strategies through further investigation (Ary et al., 2019). Finally, I organized the data into analytical categories for detailed analysis and interpretation.

Narrative Inquiry

To research the meaning of practice, the researcher must make sense of the lived worlds of those involved in the work (Watson, 2001). While Watson (2001) used these words to describe a phenomenological study on the work of information professionals, the same applies to a narrative inquiry study on male teachers working with female students in gender non-traditional programs. A narrative inquiry methodological approach fits this study's purpose and research questions because it examines human lives through stories (Patton, 2015). Huber et al. (2013) proffered researchers use narratives to gather teachers' stories to research teacher knowledge and practices. Using a narrative inquiry method to understand better educational pedagogy allowed for the connection of "who a teacher is and who a teacher is becoming" to the "processes, strategies, or style(s) of instruction lived out by a teacher" (Huber et al., 2013, p. 226). Thus, this method acknowledges that teachers do not stay stagnant but grow and change based on their experiences.

Specifically, I used the narrative life story research design to craft participant profiles showcasing their individual lives and societal roles (Kim, 2016). Bloom (2002-a) stated, "narrative research is also important for how it helps us construct social critique" (p. 311). As I viewed participants as part of the social world in which they live, I used those narratives to "illuminate how, in an individual life, different dominant ideologies and power relations in society are maintained, reproduced, or subverted" (Bloom, 2002-a, p. 311). Therefore, it was important to connect what teachers believed about themselves and their teaching practices to the world they live and work.

Interaction, continuity, and situation create a three-dimensional narrative inquiry space in which researchers explore personal and social issues, past, present, future experiences, and a place simultaneously (Clandinin & Connelly, 2000; Connelly & Clandinin, 2006). As presented in the conceptual framework, teachers have a personal and professional past, which influences the present and shapes what is currently happening in non-traditional classrooms. As teachers shared their experiences and reflected on their own stories, they also considered the future of their classroom practice. Clandinin and Connelly (2000) maintained narrative inquiry helps create new meaning and significance for study topics. Teacher experiences are missing from the current literature on gender non-traditional preparation programs. Therefore, exploring teacher narratives allowed for considering new possibilities for male teachers in non-traditional CTAE programs. Studies such as this may help male CTAE teachers discover more about who they are and who they can become as they support female students in the classroom (Clandinin, 2012).

Participant Selection and Setting

Unlike random sampling used in many quantitative studies to ensure generalizability, qualitative studies focus on the phenomenon itself (Patton, 2015). Using qualitative research methods made selecting times, settings, and individuals providing data to answer the research questions the most crucial consideration in research selection decisions (Maxwell, 2013).

Participant Selection

Specific selection criteria ensured participants provided information about the research questions guiding this study. I used purposeful sampling to select participants based on group characteristics to fit within a narrative inquiry study (Patton, 2015). I selected four male CTAE teachers who work with female students in non-traditional programs, utilizing typical case sampling to illustrate stories of distinct classroom experiences. This selection approach provided an avenue to ensure I could form what Maxwell (2013) called "productive relationships," ones assisting the researcher in finding answers to the research questions presented and facilitating the data collection process in the best way possible (p. 99). A limited number of participants also helped maintain the uniqueness of each participant's story during the data analysis phase (Maxwell, 2013). Specific participant selection criteria included:

1. The teacher must be male, working in a full-time position at a secondary school in a program recognized as a non-traditional CTAE field by the Georgia Department of Education (GDOE);
2. The teacher must work in a school system with female enrollment in non-traditional programs above 15%;
3. The teacher must be certified in the program in which he is teaching;
4. The teacher must have at least three years of experience working with students at the secondary level;
5. The teacher must have at least one year of experience working with female students in a non-traditional program;
6. A supervisor must recommend the teacher.

I selected participants from possible candidates at the schools selected for the research setting. After agreeing to participate in the study, teachers were accessible for in-depth interviews focused on teaching during the ordinary course of the school day.

It was unlikely one school would have four teachers meeting these criteria; therefore, I recruited two teachers from two different schools of similar size and demographic characteristics in Southwest Georgia. Limiting the number of schools to two and the number of participants to four supported the study's methodological design (Imel et al., 2002). Including too many schools or participants in the study would have made it challenging to tell comprehensive stories and limited the time and attention needed to gather the details required to honor the fullness of the experiences as told through narratives (Clandinin & Connelly, 2000).

Setting

My research focused on rural school districts offering gender non-traditional career technical education programs for female students. I studied High School B and High School C secondary schools in two districts. The two districts were similar in size but varied in demographics, with one school having a majority of minority students. Additionally, one school had a non-traditional female program enrollment of around 5% lower than the state enrollment, and the other had an enrollment about 5% higher than the state enrollment. While these two schools were in Southwest Georgia, they were different enough to provide various teacher experiences for analysis.

High School B is a rural public high school located in southwestern Georgia. The U.S. Census Bureau (n.d.) estimated the county population for 2019 at 26,404 people. The population was estimated to be 54.2% White, 42.7% Black, 0.8% American Indian,

0.7% Asian, 1.5% multi-racial, and 6.5% Hispanic. People under the age of 18 made up 24.3% of the population. Female persons made up 51.5% of the population. The average median income for a person living within the county from 2014 to 2018 was $39,148. The age of adults 25 and older with a high school diploma or higher was reported at 81.6% from 2014 to 2018 (U.S. Census Bureau, n.d.).

College and Career Ready Performance Index (CCRPI) records in 2019 indicated approximately 1,490 students enrolled at High School B, serving students in grades 9-12. The school population is 39.4% White, 47.5% Black, 10.7% Hispanic, and 2.3% classified as other races, including multi-racial, Asian, and American Indian (GDOE, 2019-a). The CTAE programs available at High School B include Agriculture, Architecture and Construction, Government and Public Safety, Business, Education, Science Technology Engineering and Math (STEM), Healthcare Science, and Family and Consumer Science. Pathways considered non-traditional for female students within these programs include Construction and Engineering. As indicated in the CCRPI report for 2019, 75.29% of graduating seniors completed a CTAE pathway (GDOE, 2019-a). Female non-traditional course participation rates were at 18.28% in 2017, 14.75% in 2018, and 14.29% in 2019 (GDOE, n.d.-e). The non-traditional female enrollment at this site is 5.79% lower than the current state average (GDOE, n.d.-e).

High School C is a rural public high school located in southwestern Georgia. The U.S. Census Bureau (n.d.) estimated the population for 2019 at 24,633 people. The population was 66.5% White, 29.8% Black, 1.3% American Indian, 0.7% Asian, 1.5% multi-racial, and 12.1% Hispanic. People under the age of 18 made up 24.8% of the population. Female persons made up 51.7% of the population. The average median

income for a person living within the county from 2014-2018 was $42,348. The age of adults 25 and older with a high school diploma or higher was 80.3% from 2014 to 2018 (U.S. Census Bureau, n.d.).

College and Career Ready Performance Index (CCRPI) records for 2019 indicated approximately 1,315 students enrolled at High School C, which serves students in grades 9-12. The school population is 44.2% White, 36.5% Black, 16.9% Hispanic, 1.4% classified as multi-racial, and 1.0% classified as other races, including Asian and American Indian (GDOE, 2019-a). The CTAE programs available at High School B include Agriculture, Architecture and Construction, Business, Education, Government and Public Safety, Manufacturing, Healthcare Science, Hospitality, Information Technology, Science Technology Engineering and Math (STEM), and Transportation. Female students' non-traditional paths within these programs include Construction, Drafting, Engineering, General Automotive Technology, and Welding. As indicated in the CCRPI report for 2019, 75.53% of graduating seniors completed a CTAE pathway (GDOE, 2019-a). Female non-traditional course participation rates were at 25.08% in 2017, 24.44% in 2018, and 25.27% in 2019 (GDOE, n.d.-e). The non-traditional female enrollment at this site is 5.19% higher than the current state average (GDOE, n.d.-e).

Instrumentation and Data Collection

The researcher is the main instrument for data collection in qualitative studies (Merriam, 2002). Clandinin and Connelly (2000) suggested several ways to collect data in a narrative inquiry study and emphasized intertwining field texts within the three-dimensional inquiry space with layers of complexity, not isolated pieces of information. This study’s four types of field text included interviews, field notes, conversations, and

documents. Maxwell (2013) noted that using various methods was significant for two reasons. First, it allowed for the triangulation of information to see if all data sources result in the same research conclusion or if a more complex understanding of the phenomena is attainable. Second, information collected about different aspects of the phenomena under investigation provided depth and breadth to the research study.

Interviews

I collected data primarily from semi-structured interviews. I conducted Seidman's (2013) three-series interviews approximately two weeks apart. I designed the first interview to give me a good sense of the participants' experiences in CATE. I also hoped to better understand their work with their non-traditional female students. Furthermore, I focused on teachers' backgrounds and prior work experience. In the second interview, I sought to discover more about the teachers' experiences with female students and gender equity issues within the CTAE program. The final interview allowed teachers to reflect on their organizational practices and preparing non-traditional female students for the workforce. Bloom (2002-b) recommended giving the participant a chance to reflect on answers to get to the most significant point. I used the third interview to dig deeper into anything which still seemed like it was on the surface to help my situational understanding and clarify meaning. The third interview also allowed for member-checking by allowing participants to review the information recorded and reported for the first two interviews (Seidman, 2013). The interview guide is available in Appendix A.

Interviews were conducted in person or through a video conferencing platform. Each interview lasted approximately 50 minutes and was conducted after school because all teachers were working on extended-day schedules. The last interview included

additional time to conduct member-checking and the other components of the final interview.

Observations

I conducted participant observations to collect in-depth details about the setting as I experienced it first-hand (Patton, 2015). Observations provided information in several ways. First, they presented an opportunity to confirm details provided by teacher interviews (Ary et al., 2019). Second, they gave the researcher a way to consider things in the environment the teacher may not have noticed during the interview (Patton, 2015). Ultimately, observations provided an opportunity to gather information and reflect on different aspects of the non-traditional programs available within the CTAE Department.

Before the second interview, I conducted one classroom observation in person to capture information on how the teacher engages in professional experiences to determine the environment's possible influence on the study (Kim, 2016). The observation lasted at least 50 minutes. I used an observation template containing a space to record times and descriptive notes of the observation and a space to record observer comments. A research journal also supported a reflective balance of collected information and contributed to the knowledge base (Clandinin & Connelly, 2000). Further, as I walked through the classrooms, I used an observation checklist based on a climate audit walkthrough checklist provided by the Indiana Department of Education (2016). Items were marked and discussed in conversations with teachers immediately after observation.

Documents

I used documents and artifacts to gain insight into the studied phenomenon (Ary et al., 2019). I recorded non-traditional program enrollment and completion numbers from the CTAE teachers. I asked teachers to bring these items to the second interview or observe the artifacts during the classroom visit. Teachers did not submit any other documents. Instead, I reviewed classroom instructional materials such as posters and textbooks during the observation. These items were evaluated separately from the interviews and observation.

I also created a research journal composed of memos generated throughout the research process. Maxwell (2013) noted memos are the best way to develop ideas about a study and help researchers understand the topic, setting, and research. Statements recorded in memos included reflections to clarify thinking.

Data Analysis

During the data analysis, the researcher must make sense of the data to create explanations, develop theories, or pose new questions (Ary et al., 2019). Data analysis is often messy, nonlinear, time-consuming, and complex because of the amount of information examined and interpreted. Seidman (2013) remarked, “there is no substitute for total immersion in the data” (p. 130). According to Maxwell (2013), this immersion, supporting the analysis process, should begin at the first interview or observation and continue throughout the research process. Traditional coding develops connections between categories to create several more extensive conceptual categories or themes (Merriam, 2002). In narrative inquiry, however, developing themes may limit analysis by

deconstructing the stories presented (Bruce et al., 2016). While I used traditional coding methods, the inclusion of other methods of narrative inquiry analysis was also a priority.

I created participant profiles to review transcripts and inductively begin the analysis process. Crafting vignettes by marking passages of interest from each participant interview set and pulling them into a single document provided a deeper investigation of the data. I reviewed the most crucial information and told detailed participant's stories (Seidman, 2013).

The first coding cycle utilized In Vivo coding software, which marked participants' transcripts and organized the data into clusters or categories (Saldaña, 2016). This process began as I transcribed interviews, recorded observations, and reviewed documents. First, I read and marked transcripts, reflected on whether interesting passages should be labeled, and decided how to describe the data (Seidman, 2013). Next, I established substantive categories to describe the "participants' concepts and beliefs," using their own words to develop new categories (Maxwell, 2013, p. 108). As I found commonalities or information seeming significant about the research questions, I made notations in the margins of the items under review using "a name or code word that represented the concept underlying the interview" or observation (Merriam, 2002, p. 149).

The second coding cycle utilized Values coding to highlight the "participant's values, attitudes, and beliefs, representing his or her perspectives or worldview," which was helpful for studies looking at intrapersonal and interpersonal experiences (Saldaña, 2016, p. 131). I used Values coding for field notes, conversation notes, and documents. Codes from this cycle were also categorized and analyzed to determine how participants'

values, attitudes, and beliefs interact in major and minor ways (Saldaña, 2016). Reviewing the notations established during the two stages of coding, I identified intriguing ones and put aside seemingly insignificant ones. This approach helped me support the transition from categorizing the participants' words to processing my response to the information collected as the coding process continued in the values stage (Seidman, 2013).

Kim (2016) stated it is essential to "excavate stories" from the data collected and not "decontextualize them into bits and pieces," as evidenced in many qualitative research methods (p. 204). According to Clandinin and Connelly (2000), the narrative inquiry data analysis process includes asking about meaning, social significance, and purpose while shifting from living stories to re-telling stories. When analyzing and interpreting texts, I archived data, analyzed where each piece fit into the three-dimensional narrative inquiry space, created summarized accounts of the texts, and established social meaning and significance (Clandinin & Connelly, 2000).

Narrative coding methods of broadening, burrowing, and storying and re-storying supported data analysis in a narrative format (Kim, 2016). Broadening involves studying stories by examining participants and the research site through cultural and historical contexts (Kim, 2016). Burrowing concentrates on the participants and their feelings and seeks to understand their points of view (Kim, 2016). Storying and re-storying involve bringing the "significance of the lived experience" to the forefront (Kim, 2016, p. 206).

Issues of Trustworthiness

While there are no universal or standardized criteria for evaluating a qualitative research study, specific methodological approaches support the overall quality of the

research and the trustworthiness of its findings (Patton, 2015). Merriam (2002) stated, "trustworthiness has to do with issues of internal validity, reliability, and external validity" (p. 31). I considered elements of credibility, transferability, dependability, and confirmability to ensure the validity of my research (Imel et al., 2002).

I ensured credibility in this study by collecting sufficient data, triangulation, and conducting member checks (Maxwell, 2013). Utilizing a three-interview series, combined with observations, document reviews, and an analysis of current literature on the topic, supported an acceptable level of engagement in the data collection process, leading to data saturation (Merriam, 2002). I employed triangulation as multiple data sources were collected and evaluated (Merriam, 2002). Interviewing teachers, observing non-traditional classrooms, and collecting school-based documentation confirmed data collected in several ways. Member checking allowed participants to provide feedback to strengthen the accuracy of my interpretations of data and themes or significant findings (Creswell, 2014; Maxwell, 2013). I also acknowledged personal biases while working with female non-traditional students' teachers.

Furthermore, I used member checking to identify personal biases that surfaced during data collection and analysis and correct any misunderstandings about interview or observation data (Maxwell, 2013). I also utilized disconfirmation and identified information that did not fit the patterns or trends established during the data analysis phase (Patton, 2015). Maxwell (2013) suggested examining data supporting or refuting findings to determine if a conclusion should be kept or modified. Providing evidence contradictory to current literature or the themes I have established in this study made the information presented "more realistic and more valid" (Creswell, 2014, p. 202).

I addressed transferability by providing "rich, thick descriptions to convey the findings" (Creswell, 2014, p. 202). Describing the participants and setting in detail and giving different perspectives related to identified themes helped make the findings more realistic (Creswell, 2014). While particularity, not generalizability, is the focus of a qualitative study (Creswell, 2014), readers may use descriptions and the corresponding analysis to determine whether or not the findings of this study can be applied to other settings (Imel et al., 2002). I provided thick descriptions so other districts with non-traditional CTAE programs can visualize the environment and behaviors under investigation to support the transferability of the study. One of this study's goals is ideas presented that will benefit school systems in Southwest Georgia and throughout the state. Ensuring these descriptions are as robust as possible helps educators in other school districts determine similarities to compare this study to their educational environments (Ary et al., 2019).

Dependability requires the study results to be consistent with the data collected (Imel et al., 2002). An audit trail, "a detailed account of the methods, procedures, and decision points in carrying out the study," was used to document dependability (Merriam, 2002, p. 31). Detailing procedures, organizing data, and describing participants allow others to review the study methods for credibility and transferability and replicate the study if desired (Ary et al., 2019). This audit trail, developed and stored electronically throughout the research process, supported the study's overall trustworthiness. The audit trail also helped me remain organized throughout the process and more consistent as I collected data from all participants in different school settings.

I based the confirmability of my research on a self-reflection of my assumptions and biases (Imel et al., 2002). I engaged in reflexivity throughout the process, which allowed for a "critical self-reflection" to search for and identify any personal biases revealed during the research process (Merriam, 2002, p. 31). A review of notes, memos, and other reflections created while researching allowed for identifying incorrect assumptions or personal prejudices during the data collection, analysis, or write-up phases to minimize their effects (Ary et al., 2019). As Maxwell (2013) emphasized, consistent memoing throughout the process was especially important for this self-reflection piece. Confirmability was also supported by addressing any ethical issues in the study.

Ethical Considerations

Merriam (2002) stated, "ethical dilemmas are likely to emerge concerning the collection of data and in the dissemination of findings" (p. 29). Close attention must be paid to ethical considerations throughout the research process to ensure this study does not put participants at risk or violate human rights (Ary et al., 2019). No participants were exposed to or asked to engage in any activities considered illegal or unethical. Before beginning this study, I secured approval from the Institutional Review Board (IRB) at Valdosta State University. Please see the IRB approval in Appendix B.

I requested access to the educational research setting through the selected school site's board of education office. An overview of the study and IRB approval accompanied the request sent to the system superintendent for approval. Included in the overview was a specific request to interview teachers, observe non-traditional CTAE classrooms, and review documents related to non-traditional programs. Once I gained authorization to do

research, I contacted the system's CTAE director and the school's principal to explain the purpose of the study. As a CTAE director, I understand both school leadership and the educators teaching non-traditional CTAE programs and helped facilitate positive relationships before beginning the study and throughout the process. After the investigation, findings were shared with the system and school leaders if requested.

Non-discrimination related to participant selection was not an issue. I recruited teachers based on their years of experience working with CTAE students in non-traditional programs. Once I identified teachers, I gave them an informed consent document containing an overview of the study and additional details related to their participation. This statement "enable[ed] potential research participants to make an informed choice as to their participation" after reviewing their rights and potential risks and "document their decision to participate" (Ary et al., 2019, p. 56). Please find the consent form in Appendix C.

As I spent much time with participants during the research process, I addressed relational ethical issues such as objectivity and confidentiality (Clandinin & Connelly, 2000). I ensured any relationships formed during the process did not influence the data collection or analysis. Recognizing potential issues and recording concerns in memos helped me reflect on any biases or vulnerabilities (Ary et al., 2019). While participants were not anonymous, as most rural school systems in Georgia do not have many teachers working in non-traditional CTAE fields, their information remained protected. I masked their identities in the final research report. Since I used a small number of participants, it was hard to keep them entirely anonymous. I conducted classroom observations and reported information connected to specific programs from these observations. Even

though I used pseudonyms for teachers, a particular program reference made them somewhat identifiable.

Patton (2015) provided a checklist of 10 items for qualitative data analysis, interpreting findings, and reporting results to monitor possible ethical issues, including responsible publication. I continually evaluated research processes and collected data to determine their strengths and weaknesses (Patton, 2015). This practice helped me to avoid overstating or overgeneralizing the published results. Instead, I focused on significant findings worthy of review. During evaluations, I engaged in "reflective and reflexive" practices, which helped identify and reduce any personal biases I encountered during the process's data collection, analysis, and reporting stages (Patton, 2015, p. 632). Kim (2016) noted that phronesis (ethical judgment) is developed through reflexivity as researchers consider their role in the process and the facts they present through their analysis.

I stored research electronically on my password-protected personal computer and external drives. I collected and kept written documents in a notebook and placed them securely in my home. Finally, I will shred all documents and clear all devices of research data no more than three years after university approval of the final project has been granted.

Chapter Summary

This chapter detailed the qualitative research method of narrative inquiry and described the research setting. I also described the sampling, data collection, and data analysis procedures. The chapter concluded with a presentation of viable validity

measures, including credibility, transferability, dependability, and confirmability, and addressing ethical considerations to enhance the credibility of my work.

In Chapter IV, I provide participant profiles through narratives. Chapter V reveals the results of this research, including data analysis and themes. In Chapter VI, I discuss the conclusions and the implications of the study's findings.

Chapter IV

Participant Narratives

The gender occupational gap is significant, and technical, trade, and industry fields lack female workers (Fluhr et al., 2017; Hegewisch & Baris, 2020). U.S. Census Bureau data reported one primary gender filled nearly 80% of all jobs in 2010 (Fluhr et al., 2017). This national workforce trend mirrors Georgia's secondary Career, Technical, and Agricultural Education (CTAE) program enrollment. Thus, the purpose of this study was to explore the attitudes of the male professional career and technical educators to better inform an understanding of the conditions supporting or inhibiting the participation of female students pursuing non-traditional career pathway programs at the secondary level. Qualitative narrative inquiry methods of interviews and observations were employed to learn about the shared experiences of male teachers of non-traditional female students in CTAE programs. Zoom platform web conferencing and in-person interviews were conducted based on participant choice. In addition, classroom observations were conducted in person at each participant's school while following school-based COVID safety guidelines. After the interviews were complete, participants reviewed transcripts to verify accuracy and correct any errors.

Research Questions

The following research questions guided this study:

RQ1: What are the experiences of the male professional career and technical educators of gender non-traditional career pathway programs in Georgia secondary school districts with an exemplary record of teaching female students and preparing them for high-wage, high-skilled, and in-demand jobs?

RQ2: How do educator attitudes toward education and gender equity affect the development of equitable non-traditional programming and response strategies in Georgia school districts?

RQ3: What organizational practices did exemplary male CTAE teachers responsible for gender non-traditional career preparation programs in Georgia secondary school districts utilize when recruiting and retaining female students for technical, trade, and industry jobs?

Methodology

Purposeful sampling led to selecting four male teachers of non-traditional female students in CTAE programs in schools where non-traditional female enrollment was higher than the state average. Directors of CTAE programming in the represented districts recommended participants before participant contact. Following Seidman's (2013) three-step interview model, the first interview required teachers to provide details related to their personal experiences, including family, employment before becoming an educator, education including teacher preparation programs, and current classroom practices. The first interview helped build a participant profile. The second and third interviews focused on participants' experiences with non-traditional female students and their reflections on these experiences. These interviews provided information for in-depth data analysis.

After the first interview, an in-person observation occurred in each participant's classroom. I noted information listed on a climate audit walkthrough checklist during the observation. The checklist is available in Appendix D. I also recorded descriptive notes

of the observation and made observer comments as a part of my research journal. I discussed some items noted in the observation records during the second interview.

I also reviewed documents related to the participants' programs on school websites. I requested documents from the participants specific to course registration, but none were available or provided. Before each observation, I met with the CTAE directors for each school to discuss course registration procedures and general program recruitment practices.

I assigned participants and research sites pseudonyms to help maintain confidentiality. Table 1 details information for the four participants in the study.

Table 1

Participant Demographic Information

Pseudonym	School	Ethnicity	Age	Years in Education	Current Program
Lloyd	High School B	African American	46	20	STEM
Hunter	High School B	White	43	21	Construction
Connor	High School C	White	59	19	Automotive
Steven	High School C	White	49	19	Welding

The following participant profiles provide experiences, including information about their family, education, and work roles.

Profiles of Participants

Lloyd

The CTAE director recommended Lloyd as a participant, and I contacted him via email. He responded a few days later, indicating he would be happy to participate. We connected a few weeks later once his school resumed in-person learning via Zoom, and

he spoke from his computer lab at High School B. Lloyd's lab was spacious and had several individual student workstations. The space was well-lit, and classroom rules, course standards, and samples of student projects with commentary covered the walls.

Lloyd was a 46-year-old African American male with 20 years of teaching experience. When asked about his childhood, Lloyd said it was "nothing too special" and his "childhood was like everyone else." He described his family growing up as "pretty cool" and said he "moved around a little bit." While starting his education in Kindergarten in Georgia, he "went to primary school pretty much through middle school in New York City." His school memories in New York centered on the junior high school principal who "pulled a lot of strings to get [him] out of his school zone" and provided him and nine other students waivers to attend her school. He saw himself as a "product of her vision" and explained this experience was why he was eager to participate in this study about non-traditional students. He noted he believed himself to be very non-traditional growing up as a "homeboy from the hood at an upper middle class Jewish junior high school." His teachers there were from very diverse backgrounds, including some from "eastern bloc countries" who experienced the "great war" and lived in a community with families who had relatives "decimated by the Holocaust." These teachers shaped his thinking, especially about "protecting the rights of others." Lloyd moved back to Georgia for his high school years and currently teaches, where he graduated.

Lloyd began his post-secondary journey as a chemical engineering major. Once he began his engineering internships, he was not sure he could see himself working as an engineer for the rest of his life. After speaking with his mother, an educator, he

remembered a promise he made himself that if he "had the opportunity to help back in [his] community, he would" and changed his major to education. He enrolled at Valdosta State University to finish his education degree and was one of few candidates who passed the Broadfield Science certification exam on the first try. He found his first teaching job after attending a job fair. He was irritated that a small school system recruiter was being "shunned" by candidates who were all considering employment in systems in bigger cities. He felt sorry for the man, got mad, and went to talk to the person, who ended up being his first principal at a school in North Georgia.

When speaking about his first day as a teacher, Lloyd recalled it was "great" and described his classroom, which included "a hole in the wall where a blackboard used to be" with a rolling blackboard he called "a Laura Ingles Wilder chalkboard." He taught physical science, physics, and environmental science. He also spent some time teaching science at the middle school level. He believed the best thing about teaching was the "opportunity to speak for people who don't necessarily have voices." However, he was quick to note "liv[ing] in a society where having an individual voice is highly valued" is also a challenge because it makes it "really tough to speak honestly on anything these days." He explained people "aren't really listening to each other." Lloyd believed this lack of communication significantly impacts society and trickles down into education.

At the time of the interview, Lloyd taught classes in the Science, Technology, Engineering, and Math (STEM) program at High School B. His school was on a block schedule, and he taught 120 students during four blocks. He had 19 female students in his classes fall semester and anticipated having more the following semester. At the time of the observation, 12 students were in his classroom: 4 African American males, three

White males, two Hispanic males, 1 African American female, and 1 White female. He believed his move from teaching science subjects to STEM was seamless because STEM is a natural extension of science subjects. He believed STEM is one thing about education students accept because it works and equips them "with the tools that they are going to need to be successful for their individual pursuits." Lloyd reflected on one of his middle school students and credited her with his transition into the STEM classroom. When he transitioned to high school, he remembered she was interested in 3D and prosthetics and believed he could help students like her reach their career goals in the STEM classroom.

Lloyd said he believes the goal of CTAE programs "ideally is to prepare students for the work forum" and expressed many of his colleagues believe in the same goal. He was complimentary of his department members, describing them as hard workers who prepare students the best they can "for this challenging global environment we are sending them into." He said he prepares students by focusing on employability skills and making sure students know their world using resources other than Google. He shared that this knowledge is not "sufficient to really make an educated choice," especially in the STEM field, because "the whole field can change overnight." Thus, he asserted he must prepare students to adapt to change quickly and efficiently.

Lloyd stated he relied on word-of-mouth to recruit students into his STEM program. Since his class is elective, the school does not require students to take it to graduate, unlike his previous science courses. He shared that students, especially his female students, were often recruited by family members such as siblings or cousins who were recently enrolled in the class or had already graduated. He argued he offers a quality educational experience for students, and "if you have a superior product, that's gonna

sell." He added his non-traditional female students felt comfortable in his classroom because he understands them as people, not solely as female STEM students.

I observed Lloyd interacting with students, effortlessly engaging the whole class and individual students. Each student has a personal workstation with a computer in a well-lit space, with walls decorated with gender-neutral items. The lab required no different safety gear or equipment for students of different genders. Lloyd provided some whole-group activities while allowing students to work on design projects meeting their interests. His demeanor was respectful, and he used students' names when addressing them. He genuinely wanted students engaged in class and activities outside of class. The overall student dynamic in the classroom was positive. Some students chose to keep to themselves, and students who did not interact with others were male. The non-traditional female students did not stand out in the classroom environment as minorities, even though only a few were on the roster. They participated in discussions and produced the same work as their male peers. They were not provided extra support or singled out by the other students.

During the time spent with Lloyd in the classroom, I found keeping up with former students was essential to him, and building relationships in the classroom was a priority. The participant had a positive attitude about his subject area, school, co-workers, and students. He demonstrated self-confidence in his ability to teach and reach students. Lloyd sought ways to support students and attempted to assist as needed, stating, "…when I was a kid, I would have wanted a teacher like that." His overall approach to teaching appeared to focus on being friendly and encouraging.

Hunter

I first contacted Hunter via email at the recommendation of his system CTAE director. Hunter participated in the interview from his school office. The office appeared spacious, and shelves full of books, with school and personal memorabilia lining the wall behind him.

Hunter was a 44-year-old White male who had been teaching for 21 years at the time of the interview. He grew up in the town where he now teaches, the son of a single mother who was his primary caregiver. He described his grandparents as a "second set of parents." He grew up in a house the size of his classroom, a member of a "working-class family" who "earned everything that [he] has ever gotten." He bought the house he grew up in several years ago so he "wouldn't ever forget where he came from." He was the first college graduate in his family, and his work inspired his mother to return to school to earn her nursing degree.

Before becoming an educator, Hunter worked for Winn Dixie and UPS, where he became a supervisor. Although he believed he was doing well for himself, he envied his wife, a middle school teacher, spending time with their new daughter during the summer. Hunter earned a degree in Business Management from Albany State University. However, he never planned to use it to teach until he delivered a package to High School B's board of education office. Having graduated from the school system, he was well known by the office staff. He noted, "I had already had a terrible day on the truck, and I hated the job, and I felt like a robot." The superintendent asked him if he was ready to work for the school system as he had him in mind for the construction teacher job at the high school, but the teacher had not yet retired.

Instead, Hunter took a position as a social studies and inclusion teacher at the middle school for a year and a half before the job at the high school opened up. Hunter believed serving as a construction teacher was a good fit. While taking construction classes during high school, he worked with his uncle, who owned a construction company building houses. He reflected on his passion for building and noted, "When I turned 19 years old, I bought a tract of land, and at 20, I was building my own house." Now, he "enjoy[s] teaching kids how to build" while still working construction jobs on the side. He said he planned to use these side jobs to transition into a second career in the construction industry when he retires from education and has his sights on a job opportunity in Texas.

Hunter remembered feeling "excited" about his first day of teaching and "couldn't wait to go back the next day." He acknowledged he "was mean" but noted he liked "the middle school age better than…the high school age." He covered a teacher's maternity leave during his first few months of teaching and said he still felt a special bond with those first students. Hunter had been teaching construction at High School B for 20 years at the time of the interview. He completed the New Teacher Institute at Valdosta State University (VSU) to earn his teaching certification and earned a degree in Early Childhood Education from VSU.

Hunter's school was on a block schedule, and he taught 120 students during four blocks. He had six female students in his fall semester classes, three in his first, two in his second, and one in his third. Hunter increased his enrollment in 2021, which he attributes to the pandemic and the limited number of students in career technology classes the previous year due to virtual learning. However, he usually averaged around 20 students

per block for about 80 students per day. At the time of the observation, 14 students were in his classroom: six African American males, four White males, 1 Hispanic male, two African American females, and 1 White female. Hunter stated that having 31 or 32 students in a class "is not safe," especially during a pandemic and because there is "a lot of dangerous equipment" in the lab. Thus, he believed smaller class sizes work better for his subject area.

Hunter believed funding was one of the teachers' biggest challenges, especially in CTAE programs. He also noted teacher incomes were lacking. He lamented it was challenging to see former students at 21 years old "making $30,000 to $40,000 more than [him]" who knew nothing when he first taught them. However, he said conversely, learning about their successes was the best part of being a teacher. He explained knowing they "took what I taught them and just went on with it" was the "biggest reward and satisfaction" of teaching. So, while money was a factor for Hunter, he felt rewarded for his students' success.

Hunter's "goal [was] to put out or to produce the most marketable employees for construction sites," but his "overall goal [was] to make every student better and to be all they can be." He realized not every student in his class may work in the construction field, so he shares the success stories of all types of students he has taught to encourage his current students throughout the years. He recounted several former students' stories he frequently shares with his classes. One story included two brothers he taught, children of migrant workers. One was teaching medicine at UCLA as one of the top neurosurgeons in the county, and the other Hunter helped get a job with Metro Power, where he had been for ten years and was currently a supervisor. He recalled another former student

who became "one of the best teachers in the country" and the "first one and only one in his family to ever graduate college." He used examples like this to share with students there are different ways to find success; sometimes in the construction field, sometimes not.

Hunter also allowed former students to return to his classroom to share their stories. He noted:

> I'll stop my class anytime a former student comes and wants to talk to me, and I'll put them right there at the front of the class and let them talk, and, you know, not all of them have always said 100% great things about me, and that's fine. I want them to be truthful, you know.

He even included testimony on the importance of education from former students who may come down the hallway with "a jumpsuit on, the numbers down his britches." He avowed he believes all of his former students have important life lessons to share.

Hunter built a strong reputation for his program but confessed it was not always easy. He explained the teacher before him retired after 35 years, and, toward the end, students were allowed to do what they wanted in class and "expected to do nothing." Hunter acknowledged it was a "dumping ground" when he took over and tested his ability as a "good classroom disciplinarian." Support from his administration and changing the mindset of the guidance department, along with urging his students to "be a single unit and a team," helped improve the program overall, and it began to grow and eventually thrive. Throughout the process, Hunter worked to reach the "lowest of the lowest kids," academically or socioeconomically, to help them produce "really nice projects" to encourage a friendly rivalry among students. They all worked harder and supported each

other. One of the highlights of his career was the number of job placements he made for students who had taken his classes. However, he believed his numbers had declined recently because of the idea "everybody's got to go to college" and the push for students to take dual enrollment courses. He approached administrators and guidance counselors with his concerns.

While observing Hunter with students in the construction classroom and laboratory, he was respectful and found time to engage with all students individually. He ensured students were on task and had the materials to complete their work. The lab space was bright, and there were no places for students to get lost or feel unsafe. The tool room was open and lit, but only the teacher typically entered the space. The equipment was loud when in use. It was hard to hear students over the noise, so all students talked minimally except those in very close proximity. The non-traditional female students did not stand out in the classroom environment as minorities. Instead, they worked hard in the lab and produced the same result as their male peers. They were ahead of the male students in progress on their projects. They were focused and did not get distracted talking to others, though everyone seemed to get along well.

During my time with Hunter, he maintained positive relationships with students and encouraged them to produce high-quality work. His approach to teaching appeared to focus on setting high standards and holding students accountable for their learning. Overall, the participant had a positive attitude about his subject area and believed strongly there were many opportunities available for students to work in the construction field. In addition, he appeared confident in his ability to connect with students. He spoke

fondly of many former students who kept in touch regularly, especially one young man who still sends him a Father's Day card every year.

Connor

I first contacted Connor via email at the recommendation of his system CTAE director, and he responded the next day, that he would be willing to participate. Connor participated in the interview from his classroom, so a whiteboard was behind him as he faced the computer on his desk. Before agreeing to participate, Connor spoke with a former colleague who now works at his school to learn more about me and determine my reputation as an educator.

Connor was a 59-year-old White male who had been teaching for 19 years at the time of the interview. He was born in a small town in Northwest Florida, outside Tallahassee. His parents divorced when he was young, and he never knew his biological father. He and his mother moved in with his grandparents while his mother worked to support them. His mother remarried when he was five, and Connor described his stepfather as "the epitome of a dad" who moved them to a farm where he grew up in the late 1960s and 1970s. Connor attended the high school where he taught and enjoyed his classes in the power agriculture program. He fondly remembered his high school time and noted, "I actually didn't want to graduate because I knew what the real world had to offer…I knew what hard work was." After losing the farm in the 1980s, Connor's stepfather encouraged him to enroll in trade school, so he enrolled in Thomas Area Technical School's diesel mechanics program.

After graduation, Connor took a job with Ryder Transportation Services, where he worked for 19 years and "had a heck of a career." While he "loved every minute" of

working with Ryder, his wife accepted a media specialist position at High School C, and he learned the automotive instructor had recently retired. After "much prodding" from his wife, he thought, "You know what, I've got a lot of information in my head I would like to pass on, so I applied for the job, and left it up to God…" who opened the door for him to accept the position as the school's automotive teacher. He was ready to "give back" to his alma mater.

Connor enrolled in the New Teacher Institute (NTI) at Valdosta State University and completed "about 30 more hours of classes, some online, some on campus, to get the certification" needed for the Professional Standards Commission. While he acknowledged the NTI program "told us what to expect," he was not prepared for the "culture shock" he experienced until he was in the classroom. He asked himself, "What have I done?" as students were filing into his classroom for the first time and remembered "praying before [he] walked down those stairs into [his] shop, right out there in the hallway." Then, he recalled, "…it suddenly dawned on me that I'm responsible for them, and I've got to do what I've got to do, you know, try to educate them." This first day was not the end for Connor but the beginning of a long educational career.

Connor had been teaching automotive technology at High School C for 19 years at the time of the interview. His school was on a block schedule where he taught 107 students during four blocks. He had three female students in his classes fall semester, all in his introductory course. At the time of the observation, 19 students were in his classroom: four African American males, eight White males, five Hispanic males, and two White females. He described the relationships he forges with students as the best part of teaching. He explained, "…some of them have touched me. I hope I have touched

some of them, and from the relationships that have been built afterward, I think they have." He acknowledged he cannot have the same relationship with all students in the same way, but he has developed some close bonds that have "made it worth it." He asserted the biggest challenge in teaching is a "culture that, number one, doesn't want to work." He did not think students understood they were “very protected inside these four walls," even with the varied backgrounds and social challenges they faced growing up. However, he shared his own stories of growing up to "show them what's available for them" if they are willing to work for it.

Connor believed the goal of CTAE is to "prepare students for the next chapter of their lives." He did not think they would all become technicians but prepared "to the point where they have the skills necessary to get a job if they are going into the job market, the skills necessary to help them in college." He said he focused on “soft skills,” such as arriving to class on time, which prepare them for the workforce, college, or the military.

Connor experienced many changes in how the school has promoted and recruited for CTAE classes. He preferred the days when students met with him to "write their name on a signup sheet" if they were interested in the class to the current method where he feels counselors sometimes place students "…in a class that they necessarily don't want to be in." If a student indicated an interest, Connor said he reached out to counselors about getting the student in his program but was unsure of the current course registration process. He believed his class numbers were high but attributed the number to the limited career electives available to students. He noted students needed more elective options at his school.

While observing Connor with students in the automotive classroom and laboratory, he appeared engaged. There was a very bare, neutral feel to the classroom. The white paint, concrete floors, and good lighting contributed to the neutrality of the space. The lab was a little dirty due to the nature of the work, but it was not messy. Tools and equipment had their places, and students worked fluidly around the space as they interacted and performed tasks. Students did not have textbooks but performed tasks in online modules when not in the shop. While several projects were ongoing simultaneously, Connor moved fluidly through mixed gendered groups to meet the needs of each student. He allowed students to work independently of direct instruction but provided suggestions and reminders to keep them on track. Connor had high expectations for his students and expected them to be on task and demonstrate good behavior. Students seemed to work well together and talked and smiled with each other. Students were engaged and rarely off task.

Connor promoted positive relationships and ensured his students completed authentic tasks promoting skill-building. His approach to teaching appeared to focus on setting high standards and allowing students to self-regulate their time and tasks throughout the period. He did, however, focus on classroom management. For example, he thoughtfully assigned students to groups to support lab work. Overall, the participant had a positive attitude about his subject area but believed his program's recruitment and registration processes could be improved at the school level. Nevertheless, he appeared confident in his ability to prepare students for the future, no matter their next steps. His students sought him out for guidance as an expert in his field.

Steven

I first contacted Steven via email at the recommendation of his system CTAE director. He was willing to participate and participated in a Zoom interview from his classroom, so a whiteboard was behind him as he faced the computer on his desk.

Steven was a 49-year-old White male who had been teaching for 19 years at the time of the interview. Steven "grew up in a great family" with his parents, a brother, and a sister. His mother was a homemaker, and his father was a life-long educator and football coach. Due to his father's coaching career, he lived in several Georgia cities, most in South Georgia. Steven's wife was a science teacher who taught at the same school. His father influenced his decision to become a teacher, although he "didn't want to follow in his daddy's footsteps" when he graduated high school. Instead, he went to trade school out of high school, earning degrees in industrial maintenance, electrical systems, and welding from Thomas Area Technical School, now called Southern Regional Technical College. While in school, he began his career with Koyo Company and spent ten years doing millwright work.

Steven had been teaching welding at High School C for 19 years. His school was on a block schedule, and he taught 100 students during four blocks, averaging around 25 students per block. He had no female students fall semester but taught several in previous years. At the time of the observation, ten students were in his classroom: seven White males and five Hispanic males. After accepting a position to teach welding, he enrolled in the New Teacher Institute (NTI) at Valdosta State University, taking summer and online classes to earn his teaching certification. On his first day with students, his boss at the time "gave us the key to the front door and the key to the shop and told us good luck." He

stated, "…I sat there and stared at them probably for the first hour. I didn't even open my mouth. I think I called the roll, and then I just didn't know what to do, so we just eased into it." Even with summer preparation classes and a teacher mentor on campus, he indicated he was unprepared for the reality of the first day.

For Steven, the best part of being a teacher was "…getting out into the shop and working with the kids, building projects…building relationships." Steven said he treats all of his students equally "no matter where they come from or where they are going" and gives them all opportunities to succeed. However, he believed the biggest challenge was students in his class who did not want to be there. He believed limited elective opportunities at his school kept his classes full of students but not always full of those who wanted to be there. He explained keeping an entire class of students engaged and safe in a laboratory with dangerous equipment was not always easy, especially if they were not interested in the subject area. To combat their disinterest, Steven informed students of the opportunities available in the welding field the first few days of school to teach them "what you can make and the direction you can go," whether it is welding vehicles, artwork, or other jobs including those considered unconventional. He believed students could connect the benefit of knowing how to weld to many different interests.

Steven encouraged students who like a lot of downtimes to "go get on an oil rig out there in Louisiana…helicopter out there for two weeks, let them work, bring them back to land for two weeks…and let them do whatever they want to." He believed students usually "know within the first week" whether they want to stay in his class because he gives them tours of the shop and demonstrates equipment. He noted some

students were scared and appeared “terrified of some of this stuff” and explained scared kids could be dangerous if they are not comfortable using the equipment.

Steven spoke highly of his CTAE director and described ways he helps correct registration issues with students. He said his director “magically” made students who wanted to be in the class appear on the roster and helped remove students who refused to do the work and requested a change within the first few days of each semester. The director took “it out of the counselors’ hands” when necessary, which Steven believed provided strong support for him and his program.

Steven believed the goal of CTAE is “to turn out kids to the workforce that are not going to college.” He believed in the dual enrollment program and encouraged his students to earn technical college credit in the welding program while still in high school. Stephen asserted that giving students a head start on a post-secondary program helps them find a job after graduation and provides him a way to meet his responsibility as an educator “to put the best out there that we can” into the workforce.

Steven was confident without being overbearing. He empowered students in the advanced class to do the work as assigned and supported them as they engaged in their projects. He maintained positive student and teacher interactions and allowed students to move throughout the space to use the tools they needed to complete their projects. Students who seemed to work well together engaged in work-related and casual conversations throughout the period. The workspace had a very bare, neutral feel, consisting of white paint, concrete floors, and good lighting. Yet, the space did not appear overtly masculine, even with all male students. While the nature of the class was to be hot

and sometimes dirty when welding, the spaciousness did not make it feel cramped or messy.

Steven focused on ensuring his students completed authentic tasks mimicking the skills they needed to succeed in the workforce throughout the research. His approach to teaching appeared to center on allowing students to work in teams to complete tasks while acting as a facilitator or supervisor throughout the process. Steven formed a positive relationship with the students in the advanced class, who were skilled in their craft, reflecting Steven's desire to build relationships while building projects.

Chapter Summary

In this chapter, I crafted narratives for the four participants, which provided an overview of their experiences, including information about their family, education, and work roles. These narratives included information collected during the three-interview series and classroom observation for each participant. The information in these narratives provided a foundation for the emergent themes resulting from data analysis in the next chapter.

Huber et al. (2013) asserted researchers use narratives to gather teachers' stories to research teacher knowledge and practice elements. Therefore, collecting the stories of exemplary male CTAE teachers allowed for a more in-depth exploration of teacher attitudes and experiences.

Chapter V will describe two coding processes used to develop and expand on the resulting research themes, supported by participants' stories about their experiences working with non-traditional female students. In Chapter VI, I will connect the study to the research question and discuss the conclusions, including implications and limitations.

Chapter V

Discussion of Themes

After carefully analyzing interview transcripts, observation notes, memos, and documents, in this chapter, the researcher provides findings on the conditions supporting or inhibiting girls' participation in gender non-traditional career preparation programs at the secondary level. The chapter begins with a synopsis of the data interpretation process and discusses the main themes. I utilized a narrative inquiry data analysis process, focusing on meaning, social significance, and purpose while shifting from gathering living stories to re-telling stories (Clandinin & Connelly, 2000). Broadening, burrowing, storying, and re-storying supported data analysis by considering the participants and the research sites in terms of cultural and historical contexts, concentrating on the participants themselves, and seeking to better understand their perceptions while bringing their experiences to the forefront (Kim, 2016).

During the first phase, In Vivo coding of transcripts and observation notes allowed for open coding, prioritizing participants' voices. The terms used by participants were marked by line and labeled (Saldaña, 2016). After reviewing those terms, I developed more substantive categories to focus on the "participants' concepts and beliefs" using their own words (Maxwell, 2013, p. 108). I established codes using two-letter abbreviations from the categories created from participants' own words. Four of the underlying concepts of the study served as initial codes: Access and Equity [AE], Academic Support [AS], Culture and Climate [CC], and Career Guidance [CG]. I expanded codes or renamed them as I read transcripts and identified additional information. For example, I grew access and equity into the smaller concepts of Respect

for All [RA] and Minimizing Peer Pressure [MP]. For example, Hunter said "…I don't treat my girls any different," but then extended that idea later when he revealed,

> It takes the right girl to be able to control herself and to be able to maintain the respect level, and that's one thing that I do not tolerate is for one of my male students to say or do something inappropriate with the girls.

In another instance, Culture and Climate expanded into smaller topics such as Relationships and Connections [RC] and My Student [MS]. An example of this occurred when Lloyd stated, "…your job is to find that thing, that spark that a kid has and help [female students] find the tools that they are going to need to be successful with that going forward," as positive student-teacher relationships help establish a positive culture and climate. Lloyd later noted that culture and climate were connected to the ownership of the student-teacher relationship when he said, "When I see [former female student], [I think] 'Hey, that's my student!' And there's nothing extra to go with that statement." Thus, I expanded the codes using participants' own words.

In the second coding cycle, the researcher utilized Values coding to highlight "participant's values, attitudes, and beliefs, representing his or her perspectives or worldview," which is helpful for studies examining intrapersonal and interpersonal experiences (Saldaña, 2016, p. 131). After establishing codes, I narrowed them down as I evaluated and grouped them based on the Values coding categories of values, attitudes, and beliefs (Saldaña, 2016) because "values organize narratives" (Daiute, 2014, p. 68). "Values, attitudes, and beliefs are formed, perpetuated, and changed through social interactions and institutions, and our cultural and religious (if any) memberships" (Saldaña, 2016, p. 132). Codes attributed to the values category were those concepts

connected to “principles that people live by” (Daiute, 2014, p. 69). Values were important to participants. For example, participants who emphasized respect for all [RA] students in the classroom described and demonstrated respect as a desirable behavior to justify their beliefs and attitudes. Codes attributed to the attitudes category were those concepts that describe the way people think and feel about something (Saldaña, 2016). Participants revealed their attitudes as they expressed ideas regarding right or wrong or positive or negative. For example, as participants recalled their experiences with non-traditional students, they reflected on why female students enrolled [ER] in their courses impacted their practices. Codes attributed to the beliefs category were those concepts embedded in values and are rules for the way people behave (Saldaña, 2016). Beliefs are those things participants revealed they believed either true or false about the world they operate in. For example, teachers believed that catching non-traditional female students early [CE] in their high school careers increases their chance of participating in and completing a non-traditional pathway. Values coding of field notes, conversation notes, memos, and documents helped categorize and analyze how participants’ values, attitudes, and beliefs interact in major and minor ways (Saldaña, 2016).

Table 2 contains a list of sample codes.

Table 2

Examples of Initial Codes Used

Initial Codes Used	
Values (V)	
Code	Description
RA	Respect for All – Teacher demonstrates respect to all students and expects all students to show respect to each other
RC	Relationships and Connections – Teacher gets to know students and uses student interests to build classroom and career connections
OP	Openness to Possibilities – Teacher has worked in a career field with non-traditional female coworkers and encourages students to follow those paths
Attitudes (A)	
Code	Description
HE	Set High Expectations – Teacher expects non-traditional female students to perform the same tasks to the same level as male students
ER	Enrollment Reasons – Teacher emphasizes the importance of non-traditional female students enrolling in course based on interest
TE	Treat Them Equally – Teacher focuses on equality in the classroom
Beliefs (B)	
Code	Description
FC	Female Characteristics – Teacher recognizes non-traditional female students have characteristics that make them good leaders and learners
CE	Catch Them Early – Teacher believes catching students early is vital to non-traditional pathway participation and completion
MS	My Student – Teacher recognizes the importance of ownership related to student progress, success, and future endeavors
SS	Safe Space – Teacher understands female students needs to feel safe in the classroom to be successful

After reviewing the coding of transcripts and observation notes, several codes appeared to repeat themselves frequently. Codes that appeared consistently were linked together based on their categorical relationships, and pattern analysis of codes allowed for interpretation through theme analysis (Patton, 2015). Code categories emerged into themes supported by participants' stories about their experiences working with non-traditional female students. Four significant themes materialized: (1) reinforcing equality with the subtheme of safe spaces, (2) structures supporting equity, (3) femininity

accentuating soft skills, and (4) mentoring relationships while cultivating role models.

Table 3 includes major themes and supporting commentary.

Table 3

Themes with Supporting Commentary

Themes	Participant	Supporting Commentary
reinforcing equality	Lloyd	I think I work really well with my girls because I never look at them like [girls]. I just always look at them as a person and 'What is it that you want to do?'
	Hunter	…there are areas in the classroom space where female students may feel unsafe if the class has a majority of male students…but that's one of the things that you do consider and think about. And, I think that is part of strategies or how you manage your classroom and [those] spaces.
	Connor	I try to treat everyone the same. I don't try to treat them differently because they're non-traditional students.
	Steven	… if you ask a young man to go weld a 718 rod, a young lady should be able to do the same thing. You ask her to cut metal, then a young guy should be able to do the same thing and vice versa.
structures supporting equity	Lloyd	…some of my girls want to be able to take their pictures and adjust the lighting so it's the perfect picture. It's their perfect homecoming picture. I had to buy like a whole program on this iPad just to do [it].
	Hunter	Make them believe that they can do it, and then they'll achieve doing it.
	Connor	This is automotive. This is what we do. Here are my expectations,…and I could care less about all the other stuff.
	Steven	She probably needs her own welding jacket, [and] she probably needs her own welding hood.

Themes	Participant	Supporting Commentary
femininity accentuating soft skills	Lloyd	If you allow your girls to lead collaboration and obtain the standards that you want with some flexibility, they'll move the earth to make sure that everybody stays in line and on task.
	Hunter	…girls are very safety-minded and [if] they don't understand or if [it's] not quite clear how to use something, they'll ask questions.
	Connor	From people I talk to [who] have employed women in the field, in the real world, [they] like them…It's actually the work ethic.
	Steven	I see that a lot of times girls [pay] a lot more attention to detail than the guys do. They really take their time. They try to get everything perfect right out of the gate, where a young man, he'll go in there, and he'll just take the metal and tack it together and hope for the best.
mentoring relationships while cultivating role models	Lloyd	And for our girls, what's happening is, if you can catch them in ninth grade and stick…it causes them to think about themselves differently, see. And once their minds [are] expanded, they realize there's other possibilities of what they can do with their life other than reinforcing negative stereotypes.
	Hunter	She went on to Georgia Tech and got her construction management degree, and then she went into the military. And she's done extremely, extremely well with it…I definitely had to recruit off of her…
	Connor	…[she is] now working in the field. Her daddy acquired a wrecker business, and she drives those trucks. She hooks through the cars; she fixes the cars. She has her own motorcycle; she does her own work on her motorcycle. She's living the life. I mean she's putting skills she learned here, she's putting them to work every day in what she does. She loved it.

Themes	Participant	Supporting Commentary
	Steven	[Employers] take whatever we send them, anything at all. They don't care.

Note. These serve as extracts of the themes that emerged from the study.

Description of Themes

Participant viewpoints, personal experiences, existing literature, and the purpose of the study contributed to the development of themes (Creswell, 2014). The four major themes and one sub-theme emerged when analyzing the data: (1) reinforcing equality with the subtheme of safe spaces, (2) structures supporting equity, (3) femininity accentuating soft skills, and (4) mentoring relationships while cultivating role models are discussed in this section. While some themes may reflect similar experiences, I approached each theme independently for analysis.

Reinforcing Equality

This theme focuses on four male CTAE teachers' efforts to create a learning environment where male teachers treat female students as equals in male-dominated career preparation programs. This theme reflects Title IX legislation of 1972 requiring institutions receiving federal funds to operate free from discrimination based on sex in many areas, including recruitment, admissions, counseling, and sexual harassment (USDOE, n.d.-c). Career education programs do not always provide young women equal opportunities (Camera, 2016). Female students in gender non-traditional career preparation programs often still encounter discrimination, sexual harassment, gender stereotypes, and classroom practices inhibiting their chances for success (Kim et al., 2021). However, all participants in the current study said they were mindful of issues that negatively impacted their female students. As a result, they moved beyond essential compliance with laws, allowing them to create spaces where all students receive equal

and equitable instruction so they can thrive. The boundaries between equality, treating everyone the same, and equity, treating everyone fairly, are permeable. This theme and the following theme on equity, while explained separately, are interdependent and contain overlapping ideas.

Participants stated they understood that equality and equity are crucial in CTAE programs, as traditional gender disparities often exist between the treatment of male and female students, especially in gender non-traditional career preparation programs. In the past, many CTAE programs disproportionately enrolled female students in career programs with traditionally lower-paying jobs (Field, 2018). This historical trend, combined with essentialist views of male primacy (Charles & Grusky, 2004), led to the dominance of men in technical, trade, and industrial career fields on an international scale (Struthers & Strachan, 2019). Male primacy, combined with patriarchal themes, the idea that women are subordinate to men, negatively impacts women in all aspects of society, from religious practices to legal proceedings to economic systems (Murthi & Hammell, 2021).

Women in rural communities face more challenges from patriarchal ideals than their urban counterparts (Smith, 2017). Smith (2017) reported changes in business models and economic globalization negatively affected rural labor markets as well-paying jobs in the manufacturing and farming industries had been replaced by lower-paying jobs in the service industry. According to Shepard and Marshall (2000), rural communities have a limited number and range of career options, which places women in rural communities at a disadvantage because traditional values limit their career choices due to career options and goals. Quinlan (2013) noted women in rural communities are

more likely to marry at a young age and less likely to earn a bachelor's degree. These limitations are often magnified due to expected life roles and are compounded by reduced access to higher education opportunities (Shepard & Marshall, 2000) and healthcare (Quinlin, 2013). As a result, nearly one in four women in the rural south live in poverty, with the average poverty rate for women in Georgia at 10.6% and in rural counties at 38.7% (Mason, 2022). These rates are consistently higher for women of color, with Black women around three times less likely to graduate from high school than White peers (Mason, 2022).

Traditional values prevalent in the rural south can impact the careers women select because community members often perpetuate assumptions about which jobs are suitable based on gender rather than talent or career interests (Shepard & Marshall, 2000). Moreover, many women lack access to necessary educational and career resources (Mason, 2022). Participants in this study were taught in rural Southwest Georgia and worked to counteract such issues negatively influencing their female students by focusing on equality and equity. As Kwauk and Bever (2017) explained, teachers must have the ability to understand both social and gender dynamics to transform gender-exclusive environments into more inclusive ones.

Equality in this research means that every student gets the same resources and opportunities. For the participants, equality meant delivering the same quality of instruction with access to the same resources and materials within the same facility to all students. This notion of equality aligns with the NAPE (2019) definition of equity; wherein all students have what they need to succeed. Participants supported equity and focused on equality of treatment, expectations, and outcomes for their students,

regardless of gender. In this section, the researcher describes how participants ensured every student received the same resources and opportunities in the CTAE classroom and laboratory and set equal performance expectations for all students. The equality of the learning environment is discussed in the subtheme safe spaces.

All participants understood equality in different ways. For example, Lloyd noted, "I tried to treat all my kids equally." Connor stated, "I try to treat everyone the same. I don't try to treat them differently because they're non-traditional students." Steven also said, "I've always treated the girls the same [as] the guys." In terms of expectations, Connor noted his female students "…fall under the same umbrella as everybody else." Connor also confessed he did not care about students' backgrounds or how much money they might have and stated, "This is automotive. This is what we do. Here are my expectations,…and I could care less about all the other stuff."

Similarly, Steven noted, "Whatever I ask one to do, I ask the other to do. I never tried to treat [female students] unfairly." Lloyd explained, "I think I work really well with my girls because I never look at them [in relation to their gender]. I just always look at them as a person." Regardless of how participants elected to approach the concept of equality, they expressed it was an important consideration.

Steven also believed his female students should perform the same skills as their male counterparts and asserted:

> If you ask a young man to go weld a 718 rod, a young lady should be able to do the same thing. You ask her to cut metal, then a young guy should be able to do the same thing and vice versa.

Steven expressed a desire for his female students to remember that his classroom was a place where they felt equal. He stated,

> I hope they would say he treated me just like one of the guys, and that he was fair across the board, not just to me but to all the students…I hope they would say that they were able to learn something; learn a skill that they will always have. Whether or not they use it, they will always have that skill.

Although no female students were in his classroom during the observation, Steven noted several instances when his female students performed the same tasks as his male students, even in skills competitions outside the classroom. Participants ensured female students had what they needed to succeed in providing a safe environment where they could thrive.

Safe Spaces

The sub-theme of safe spaces describes how participants in this study created a physical environment that appealed to female students and kept them clear of potential harm. Backes and Nawolski (2013a) explained that the health and safety of students in the CATE classroom must be the highest priority for teachers. An ideal CTAE environment is clean and free of hazards, making them appealing to students (Backes & Nawolski, 2013b). Participants asserted non-traditional career fields such as automotive and welding are dirty by nature, which may keep some female students from considering those careers. Connor thinks students are becoming less interested in his course because of the automotive field. He stated:

> [It] is dirty, and this day and time people are more getting away from it. I guess there's…maybe a stigma attached to it that mechanics is just an old greasy, dirty

thing. But I'm getting less good, interested students [who] follow this past the secondary level.

Hunter stated female enrollment in the construction program "the dust, the dirt, the grime" associated with the field might limit female participation. He acknowledged female students might have a negative attitude about working in the laboratory because they think, "I can't be cute. I can't have my clothes clean. My shoes are gonna get dirty." Therefore, keeping labs clean and gender-neutral was a priority for all participants.

I used a climate audit checklist to corroborate participants' perceptions of their instructional learning spaces and determine if the space would appeal to students of both genders and if instructors were engaging in fair practices supporting equality of instruction. This checklist (Appendix D) focused on the instructional elements to consider when gender non-traditional students are present. The checklist results are summarized in Table 4 and explained in detail following the table.

Table 4

Climate audit checklist results.

Checklist Item	STEM	Construction	Automotive	Welding
Do posters, pictures/paintings on the walls, textbooks, or other classroom materials show students/adults of both genders?	YES	YES	NA	YES
Do classroom wall paintings, pictures, posters give off a predominant "masculine" feel (e.g. mancave) or "feminine" feel (e.g. boutique)?	NO	NO	NO	NO
Is there a locker room/changing space/restroom in or near the classroom that might be uncomfortable for the non-traditional gender to use?	NA	NO	NO	NO
If students have uniforms, required clothing, or gear, could the garments themselves or the colors be off-putting to the non-traditional gender?	NA	NO	NO	NO
Are there areas in the classroom space where female students may feel unsafe if the class has a majority of males?	NO	YES	YES	YES
Does the instructor refer to "my girls" or "us guys" or other terminology that caters more to the predominant gender?	NO	NO	NO	NO

Note. NA means there were no elements in the classroom/laboratory to rate, or the item was not needed for the classroom/laboratory.

Participants did not explicitly mention the use of textbooks or teaching materials when speaking about non-traditional female students. However, Lufkin et al. (2007) noted books and teaching materials needed to show female students examples of other women working in the field to help break stereotypes of different career options. The welding and construction classrooms contained textbooks, but the publishers included

only a few female pictures in the texts. There were no textbooks in the automotive classroom, but Connor used an online learning system demonstrating diagrams of parts and processes. The STEM lab did not have textbooks displayed.

Teachers did note other classroom elements that highlighted female students and their work. The STEM lab displayed posters on the walls of male and female students performing tasks, and Lloyd posted work samples of male and female students' work. The construction classroom had a BRAG board containing articles and pictures of male and female students. Hunter said sharing information about student success was important, and his students enjoyed positive recognition. The automotive and welding classrooms and lab walls were free of any posters. All participants had classrooms with light paint colors, concrete or tile floors, and good lighting. These elements contributed to the neutrality of the spaces. The construction, automotive, and welding labs were not spotless due to the nature of the work, but all labs were clean and organized.

The construction, automotive, and welding labs did have smaller storage closets or spaces where female students might feel unsafe if alone with another male student. Smaller spaces such as offices and tool rooms had windows for visibility. All students had access to the spaces, but teachers propped open doors when those spaces were in use. During the observation, teachers were observant of these spaces to ensure students had access to the needed materials but were not engaging in any inappropriate behavior violating the school’s code of conduct. The STEM lab had clustered workstations surrounded by half walls with the spaces always visible to the teacher.

The checklist highlighted some issues with the functionality of the space for female students. As Steven noted about his welding lab, “We don’t really have anywhere

for [female students] to change clothes. I mean they could go to the girl's bathroom to change clothes if they needed to." This argument was also true for the automotive and construction labs. One female student in the automotive classroom used the closest restroom to change clothes while I was in the classroom. It caused her to be a few minutes late for the start of the class period. Connor did not acknowledge her late arrival but immediately placed her in a group to work in the automotive laboratory. She, however, seemed pleased at the end of the period after helping her group complete an oil change and a tire rotation. She had a big smile when she showed her dirty clothes to Connor because it signified her hard work. He smiled back at her and replied, "that's what washing machines are for." They laughed before she went back to the restroom to change into her other set of clothes.

Students' behavior and learning quality depend on their perspective of the learning environment (Placklé et al., 2020). Therefore, teachers of non-traditional female students have to think beyond general cleanliness and generic safety hazards about how learning spaces impact female students' perspectives on equality and personal safety in those classrooms. As Hunter noted about his construction lab,

> …there are areas in the classroom space where female students may feel unsafe if the class has a majority of male students…but that's one of the things that you do consider and think about. And, I think that is part of strategies or how you manage your classroom and [those] spaces.

Therefore, these teachers indicated they must take steps to ensure spaces are safe and consistently monitored.

While teachers must manage the classroom, so female students feel safe with their male counterparts, Steven noted male teachers must also be careful working with female students in certain spaces. He said,

> The only time I feel awkward teaching a young lady is if for some reason she's in a welding booth and I have to go in there with her, just me and her. You know you feel, you just feel that way. You don't ever want anything to be said. But we're fortunate enough most times, our booths are back-to-back like they are now, so you either got, I got a girl welder using it and there's a guy also welding in that booth...You never want her to feel awkward in there with a man also, on her part too, not just the teacher's part, [on] the student's part.

Hunter was also aware of spaces where he or a male student and a female student might end up together. He is aware of potential sexual abuse accusations from female students if he handles personal space issues carelessly. He reflected on such a situation that occurred during the classroom observation and recalled,

> [The female student] asked me for a drill bit or she asked me for some kind of little hand tool, and I always keep a doorstop in my tool room door. I don't think nothing about going there if it's another guy in there, but if there's a girl in there, I don't go in there. I mean,… I walked in there, the door shut behind me, and I was grabbing the doorstop, which is inside the door, and here she comes barreling in there, and she don't think nothing about it at all.

He expressed that he did not want to put himself in a position which could result in an accusation of misconduct.

Participants did not use language that favored a predominant gender and kept their language inclusive. Using gender-inclusive language is more effective when targeting specific populations like non-traditional female students (ICSPS, n.d.). When addressing the group, Connor used “fellas” but added “young ladies” when seeing a female student. Hunter used “y’all” when addressing his group of students and “fellas and ladies” in other instances. Lloyd addressed his class, using “students” and “we” instead of specific group terms for males or females. No participants emphasized male-dominated terms, although male students dominated the classrooms, and all used students’ names frequently.

The participants also advocated for improvements to attract female students and make them more comfortable in the space. While the learning spaces were neutral, Hunter disagreed that was always the correct approach. He argued teachers should make spaces look inviting for all types of students “instead of just a generic everybody, one [size] fits all kind of approach.” Modifications to help students feel more comfortable in the space can increase equity.

Structures Supporting Equity

This theme describes the strategies participants applied to ensure all students had the opportunity to achieve the same positive outcomes regardless of the background, prior knowledge, or unique challenges they bring into the learning environment. Participants understood that equality, wherein all students have the same opportunities, must be in place before the transition to equity, wherein all students have what they need to succeed (NAPE, 2019). Thus, in addition to focusing on the environment and instruction equality, participants also considered their students' specific learning circumstances. Female students, in particular, face gender stereotypes and teaching and

learning differences in gender non-traditional classrooms (Lufkin et al., 2007). Participants understood that students do not all respond to the same types of instruction in the same ways. They also recognized supportive structures encouraging respect were needed to engage female students who experienced specific challenges in a male-dominated learning environment.

While participants focused on treating students equally, they also proffered equity is impossible without meeting all students' needs. Participants were cognizant of differences between male and female students regarding pedagogy and structural awareness (Ray et al., 2018). Participants operated their classrooms equitably by attending to each student individually, knowing female students may require different or more personalized help depending on their past educational experiences, learning styles, and academic abilities. Participants also focused on setting high expectations for students and emphasized the need to encourage female students in a male-dominated learning environment.

Participants highlighted strategies and accommodations that worked well with female students in their commentary and implemented differentiated instruction to ensure all students met the same learning outcomes. Participants created an equitable learning environment by purposefully using strategies that met students' needs and helped them reach their full learning potential (Wormeli, 2006). Tomlinson (1999) explained teachers could differentiate instruction around content, process, or product based on students' readiness, interests, or learning profile for a particular subject. Participants' notion of differentiated learning aligned with Wormeli's (2006) assertion that differentiated instruction does not make learning easier but provides a way for students to interact with

educational content appropriately. Participants employed differentiated instructional strategies not to minimize female student participation or contributions to the classroom but to support student success.

Participants extended differentiated learning by modifying the content, stipulating what students needed to learn and the resources or tools used during that process (Tomlinson, 1999). In Lloyd's laboratory, he used diverse tools and equipment to engage his female students. He purchased computer equipment and software that met the needs of his female students in his STEM classroom and listened to their requests. Their specific needs led him to purchase iPads and keep the software Blender on hand. He explained:

> Some of my girls want to be able to take their pictures and adjust the lighting, so it's the perfect picture. It's their perfect homecoming picture, you know. I had to buy a whole program on this iPad just to do [it].

Participants expressed that specialized equipment for female students helps these learners feel more comfortable to be more engaged in the learning process.

While they do not have such equipment, Hunter and Steven recognized the need for equipment targeted at female students. For example, Steven explained, "she probably needs her own welding jacket, [and] she probably needs her own welding hood." Hunter wrote a grant based on this premise but never received the funds. His idea was to purchase smaller equipment for female students. He said,

> I thought it would be a good idea to have instead of a real heavy skill saw that weighed 10 pounds and [was] a little bit big, and a little bit heavy, and a little bit awkward for, heck, some of my male but definitely my female students…

> something that would be more girl-fitting and specialized with maybe battery-powered lithium cordless tools that are lighter than a big motorized tool…

Thus, participants acknowledged female students would benefit from including additional tools and equipment better suited to their needs.

Participants implemented Tomlinson's (1999) idea of process differentiation by designing activities that help students interact with course content meaningfully. When teachers provide instructional methods that allow students to take ownership of ideas, students are more likely to successfully integrate them into their knowledge base (Tomlinson, 1999). Thus, instead of teaching the whole group one way, Lloyd used different instructional methods, including small group and individual tasks utilizing different software and equipment. Lloyd encouraged his female students to stay engaged in the instruction and share their ideas with their male peers. Female students shared workstation groups with male students, and dialogue between them was encouraged as they shared project ideas and strategies. He also provided an environment where female students could envision their future success. In one instance, a male student was researching 1930s animation called rotoscoping, and the student and teacher began discussing an animator who went missing and the mystery surrounding his disappearance. The female student in the workstation group became curious, so they engaged her in the discussion. The female student related the discussion to another subject and teacher and made a personal connection to her own life. She told Lloyd she did not want to go missing like the animator, but she wanted people to remember her achievements like his. Lloyd concurred that she could achieve such success.

Connor argued the need for content and process differentiation in the automotive laboratory. He set the same performance expectations for his male and female students, but he acknowledged the way students utilize resources and materials or interact with the content may be different. He mentioned concerns some female students have regarding their physical strength. Connor explained, “If they need physical help, certainly that’s provided…,” but support was not gender-specific. During the observation of Connor’s classroom, a female and a male student asked the instructor for help when they could not loosen a bolt required for an oil change. But both students were given an equal opportunity to try. He noted physical strength did not exempt students from required tasks. Connor demonstrated removing lug nuts on a tire to complete a tire rotation in another instance. He required each student in the mixed-gendered groups to practice with one lug nut to demonstrate the skill and then let the group decide how to proceed. One of the female students removed most of the remaining lug nuts to complete the process, and the other students moved on to other tasks. Connor did not defer to one gender over another when assigning work. He required all students to be equal, active participants though their approach to and methods of performing a task might be different. He supported this type of differentiation, which supports an equitable learning environment.

Hunter revealed some female students are worried when they enter his class because many know little about construction and “don't want to come in [his] class and fail it." He asserted reassuring students by setting high expectations helps them believe in themselves and noted females often outperform their male peers in the end. When observing Hunter’s laboratory, the female students were several steps ahead of their peers working on their projects. Hunter noted once his female students experienced success in

his laboratory, they often became perfectionists and worked to produce the best product possible. The practice of setting high expectations is consistent with Gentrup et al.'s (2020) assertion that teacher expectations not only predict student outcomes but also, they become "self-fulfilling prophecies" because teacher expectations influence students' perceptions of themselves (para. 32).

Similarly, de Boer et al. (2018) argued teachers are presenting negatively biased expectations that harm student achievement, while those presenting positive expectations benefit students, even in career selection. Hunter emphasized this when he said, "Make them believe that they can do it, and then they'll achieve doing it." Thus, female students benefit from having teachers who believe in them.

Likewise, Connor suggested his expectations strongly influenced student achievement. Mesler et al. (2021) noted the way teachers interact with students impacts performance, especially during transitions. As female students transition into high school and non-traditional career programs, teachers need to convey acceptance and support the idea these students can be successful at learning something new (Mesler et al., 2021). In this way, participants applied a growth mindset by focusing not on what students did not know but on how students improved over time. Connor explained students' backgrounds and economic status were set aside once they entered his classroom. He stated, "This is automotive. This is what we do. Here are my expectations,…and I could care less about all the other stuff." Thus, teachers with a growth mindset set high expectations for students because they believe all students can evolve and experience success (Mesler et al., 2021).

An Institute of Physics (IOP) (2017) report revealed educators often encourage course selection based on stereotypical gender norms, steering male students away from courses in English and females away from courses like physics. However, Hunter argued his female students should be free to study what interests them, not steered away from technical subjects because teachers promote gendered stereotypes. Olson (2013) cautioned teachers of non-traditional programs must assess their values and beliefs about careers to ensure they do not reflect any biased ideas to their students when helping them make career choices, which Hunter has done. Hunter said while some teachers reinforce negative gender stereotypes, he counters these narratives in his classroom and laboratory. He admitted he often considered the traditional roles men and women play in society, which places men in a position to do things like the heavy lifting, as a sign of respect to women. He likened those thoughts to how he wanted someone to treat his daughter. However, Hunter argued his female students did not want to be treated differently and indicated one stated she could do anything the males could do. He described a thank you note she wrote him and stated,

> On her thank you note, she listed all the things she was thankful for, and at the very end said…I can pick up anything those guys can pick up. Something about, 'don't expect me not to be hands-on and picking up things.'

He continued,

> So today, we moved couches from the special ed department. They got all new couches, and I look out there and they're bringing it off of the Babcock truck, and she's got one end of the couch and toting it in by herself.

As a result, he now considers how best to balance the idea of respect and treating students equally regarding physical tasks, blending the two to create equity within his classroom.

The participants also emphasized promoting respect in the learning environment as a path to equity. Focusing on overall equity helps lead organizations to gender equality, which empowers students to believe all genders deserve respect - better preparing them for future success (Waterford.org, 2020). The participants employed classroom management strategies that emphasized respect, monitored students' behavior to help quickly handle incidents of disrespect or harassment, and provided female students the opportunity to earn respect from their male peers. Hunter said respect is not always automatic, especially when the "boys will be boys" mentality is often present in a classroom traditionally full of male students. Hunter stated,

> One thing that I do not tolerate is for one of my male students to say or do something inappropriate with the girls. My classes that do not have the girls in here, it's a little bit more relaxing and a lot more things are said and done. But my classes that do have the girls, I hold them [to] a lot higher of accountability, and I hold them to a higher standard with respect issues for sure.

Thus, Hunter did not allow any disrespect for female students to infiltrate his classroom.

Some female students opt to report incidents to their teachers, and participants noted female students need to feel respected by their teachers to be comfortable doing so. Hunter has had "some [female students] that wouldn't say anything, and they would come to me in the end of the class or after school," to report an incident in the classroom. Hunter explained it was important to immediately investigate issues and quickly address problems that arise if one occurs.

Connor demanded respect for his female students and intervened on their behalf if needed. He shared, “A young lady had on a pair of white jeans, and she came up to me and told me that somebody had grabbed her buttocks and there was the greasiest handprint you ever saw on those white jeans.” The female student identified the male student. Connor immediately sent him to the office with a referral. While Connor believed this female student “shed” the incident off and was “fine” with the male student afterward, he did not ever grab her again. Connor dealt with the issue promptly and supported the discipline measures enacted by his administration to help deter any future incidents.

Participants also noted that some female students demanded respect and were supportive during those instances. Connor recalled an incident when a female student stood up for another male student being bullied and harassed by his classmates. He stated,

> I had [a] girl that stuck up for another guy…She had engaged him physically, they had come to duking it out…The guy was getting harassed by this guy, and she called him out and went toe-to-toe with him. So, it cost her some days, but…she didn’t play that. She thought [she] was right. Whether it was right or not; she thought it was right and that’s the way it went.

Connor acknowledged fighting in school was not the appropriate way to handle a situation. Yet, he later named that student his automotive student of the year based on her skill and dedication to the program.

Hunter also recalled some of his female students standing up for themselves as well, stating, “I’ve had some [female students who] would definitely make the kid feel like they were 6 inches tall, and embarrass them, and they would know not to do

[whatever it was] again." Thus, participants allowed female students a choice when handling difficult situations with their male peers.

Participants also provided opportunities for female students to earn the respect of their peers by promoting them as leaders in the classroom. As Hunter explained,

> …[girls] definitely are quick…[A female student] was the first one to finish her project; and… [the male students] go to her for advice and [ask], 'How did you do that so quick? What did you do to do this?' And they put her in a leadership role without me having to do it. They definitely give respect where respect's due, and I'm fortunate I have good kids.

Participants offered myriad examples of female students demonstrating leadership skills, and these skills are explored more in the theme Femininity Accentuating Soft Skills.

Participants in this study created a welcoming environment where students could excel academically and build the skills and experiences needed to succeed in the workplace (Estes & McCain, 2019). Since classroom culture and climate play a factor in student success (NAPE, 2019), participants focused on implementing structures to help eliminate classroom biases against female students by reflecting on how gender-related barriers inhibit learning (Andrus et al., 2018). All participants used various methods to differentiate instruction, support student growth, and cultivate attitudes of respect to create an environment free of harassment. Though equality and equity are not the same and can have vastly different implications for education policy and decisions educators make, participants asserted both equality and equity are interdependent and essential to ensuring the best possible outcomes for their female students.

Femininity Accentuating Soft Skills

In this theme, I focus on participants' perspectives on their female students' use of soft skills to succeed in male-dominated career preparation programs. While their interpretation of soft skills may differ from how CTE experts define soft skills for educational purposes, the idea of soft skills as desirable employability skills is the same. Focusing on teacher perceptions of student femininity highlights useful traits educators can access to improve teaching and learning in gender non-traditional classrooms. All participants in this research study attributed feminine soft skills to their female students' success in preparing for gender non-traditional careers and reported that female students were well-suited to work in a male-dominated environment. The students ably balanced soft skills with the technical skills required for program success. Participants identified several soft skills required for success in the CTE classroom, including critical thinking, interpersonal skills, personal qualities, and resource management (USDOE, n.d.-c). Specifically, participants focused on female students' skills related to applied knowledge, initiative, responsibility, and relationships. Participants described how these soft skills supported career preparation activities in the classroom and laboratory, where students learned new skills and applied them in project-based learning exercises. They reinforced the idea that obtaining academic and technical skills is important, and soft skills are also needed (USDOE, n.d.-c).

Gendered career stereotypes require women to give up their femininity to perform tasks in non-traditional career fields; something participants noted female students experienced at the secondary level. Hunter indicated females studying construction "would be labeled as more of a tomboy or being, [for] lack of better words, lesbian or

dyke, or that kind of stuff… I've had some of that…she would definitely be labeled." Steven stated, "…kids are gonna be kids, and [you're] gonna have some of them kids, [they're] gonna think the worst of the young lady; call her names or think maybe she's a tomboy" if she pursued welding. Connor explained it was often not the males in his class but other female students outside his program who harassed female students taking automotive classes. He stated, "sometimes they would be looked at by other [female] students, not in my class, like, 'Why would you take that class? Why would you do that?'" These stereotypes and discriminatory ideas contributed to role strain, negatively impacting female students' initial relationships when enrolling in non-traditional programs (Folami, 2017).

Negative stereotyping also occurred in the laboratory, a more challenging space for students to retain their feminine identity because of the work done there. Hunter noted, for example, "the dust, the dirt, the grime" keeps some female students from participating in the program because they think, "I can't be cute, I can't have my clothes clean, my shoes are gonna get dirty." Connor agreed the automotive field is "a dirty field," and there is a "stigma attached to it that mechanics [are] just ole greasy, dirty thing[s]" which keeps some students away. Steven stated, "ladies come in here dressed all up. They don't want to come in here and burn their clothes up, get hot, get nasty." In this sense, some female students complied with a form of femininity by not engaging in laboratory activities or ultimately deciding not to enroll in the program.

Instead of requiring non-traditional students to relinquish their femininity to assimilate into a non-traditional classroom, participants argued the feminine attributes female students bring into the classroom make them successful in ways many male

secondary students are not. These attributes are known as employability skills or soft skills. When addressing how some female characteristics relate to the challenges women engineers face in the field, Kaewsri and Tongthong (2014) noted "effort must be made to give due recognition to certain traits and favorable attributes that are perceived to be inherent strengths of female engineers" (p. 12). These characteristics were not focused on technical skills but included skills related to leadership, risk-taking, patience, effort, and self-confidence, known as soft skills (Kaewsri & Tongthong, 2014). Jordan (2020) also noted many women in the construction field described themselves as having strong character, being open-minded, and working as problem solvers, all soft skills participants in this study reinforced in their students.

The first soft skill participants attributed to their female students was applied knowledge, including academic skills and critical thinking (USDOE, n.d.-c). Holt (2018) noted employees in the automotive industry need to think quickly, adapt to different situations, be flexible to changes, and quickly solve problems. Participants indicated that female students outperformed male peers on many academic tasks, supporting their critical thinking skills while retaining more stereotypically feminine traits. Hunter explained, “the smartest kids… I never see,” and those who are smart often “have the least amount of common sense.” He continued, “I mean, I’ve got a kid right now [who] is probably at the very top of his class, and he cannot figure [it] out. He can’t problem-solve to save his life.” However, this did not always apply to the female students enrolled in non-traditional programs. Lloyd commented on the strength of his female students and affirmed, “…a lot of my non-traditional students have actually been a lot of my stronger

students. And they've actually really taken and run with it, and it really makes me proud." Thus, participants recognized the academic strengths of their female students.

Lloyd said his female students excelled in processing higher-level skills, using the soft skill applied knowledge. This skill involves applying what is learned to different situations to build new technical skills (USDOE, n.d.-c). He shared the following vignette:

> Some of my girls like making crafts, making a tangible object, taking a picture and seeing how they can apply that, not just for a selfie but [so] they can use it for business. So that's something that they can relate to, and they're really good at, so they can take a hold of that. And part of STEM is using technology properly. Manipulating digital constructs is a high-level skill, and [they're] like, 'Well hey, I can almost do that already.' And then it's an easier sell to apply [it] to other concepts.

Thus, participants recognized female students are adept at applying and analyzing information.

The second set of soft skills participants associated with their female students related to taking initiative and willingness to learn (USDOE, n.d.-c). Participants expressed that many female students' concern when enrolling in a non-traditional pathway was their fear of not being successful when performing new tasks. Hunter noted, "probably the biggest concern that I hear when girls come to my class is that I don't know anything about this; my grades are important…I don't want to come in your class and fail it." Hunter later stated,

> If I have a test or a standardized test or whatever, they always make better

> grades…And I'm like, 'Look here, if you're any kind of student at all you will probably do better on everything we do than most of the boys 'cause they're…not as concerned about the grades and definitely not as perfectionist, and they are more immature at this age.

Likewise, McDonald (2017), reporting on the skills gap technical industries such as coding and programming currently face, acknowledged that industries desire employees with the technical skills to succeed. If those are lacking, however, company leaders want employees who demonstrate confidence and the ability to learn new things quickly (McDonald, 2017). Participants shared that many female students were willing to take risks, learn new skills, and demonstrate competence and confidence in their abilities.

The third set of soft skills participants attributed to female students related to personal qualities of responsibility, self-discipline, and professionalism (USDOE, n.d.-c). Steven said many of his female students embodied characteristics related to professionalism, stating,

> I see that a lot of times girls [pay] a lot more attention to detail than the guys do. They really take their time. They try to get everything perfect right out of the gate, where a young man, he'll go in there, and he'll just take the metal and tack it together and hope for the best.

This attention to detail is consistent with Hagger and Hamilton's (2018) assertion that self-discipline allows individuals to temper impulsive short-term decisions with steady long-term goals producing greater results.

Hunter indicated many of his female students focused on long-term results and noted, "girls will ask questions, where guys just, they're hands-off and [don't] even think

about it, and then they'll ask why I did it later." Hunter also explained, "girls are very safety-minded, and [if] they don't understand or if [it's] not quite clear how to use something, they'll ask questions." Steven said, "the girls seem to follow directions a lot better." Thus, participants described how many soft skills build on each other and interact to help female students become well-rounded students in the non-traditional classroom.

Many female students also display positive behavior characteristics while in the classroom, demonstrating soft skills related to effective relationships, including desirable personal and interpersonal qualities (USDOE, n.d.-c). Holt (2018) explained as workplaces are composed of different personalities, employees must respectfully resolve conflicts and manage reactions. Hunter noted his female students demonstrated the ability to self-manage and work well with others. He shared, "I've never had a discipline issue with a female student… I've never had a female student in my class cuss or act up or fight or anything…And teaching, as far as discipline, …I've never written one up." As a result, participants noted female behaviors helped improve the environment.

Lloyd, for example, noted his female students help maintain student-led classroom management, which improves the climate of his classroom. He explained, "if you allow your girls to lead collaboration and obtain the standards everybody stays in line and on task." This approach allows female students to model leadership behaviors and demonstrates their interpersonal skills, including taking the initiative, demonstrating responsibility, and promoting teamwork (USDOE, n.d.-c). Ahmad et al. (2019) found the classroom environment strongly influenced students' leadership skills development. The ability of students to interact with their teachers and peers positively impacted effective

leadership skills. Participants asserted the importance of classroom leaders and provided opportunities to help grow the leadership abilities of their female students.

Participants noted most male students in the class accepted female students as leaders. Connor said male students often recognize the high quality of the work of female students, and in some cases, "some of the guys were maybe a little bit envious" when female students experienced success. Hunter explained when his female students do well, their male peers take notice and often "…go to her for advice." Moreover, these leadership roles do not require female students to give up their feminine characteristics. Instead, it allows them to use them to support the skill development of all students in the classroom by serving as peer teachers. This role promotes mental, personal, and interpersonal growth (Burton, 2012).

While gendered stereotypes can hinder female students from selecting non-traditional careers and even participating in programs preparing them for such careers (He et al., 2018), participants noted females bring many positive aspects to the career classroom and benefit the future workforce. Participants noted their female students are often skilled in paying attention to detail, following directions, asking questions, and critical thinking. Many of their female students also demonstrate the ability to lead and collaborate with others. Connor noted that characteristics considered to be traditionally female have the potential to advance women in careers in the skilled trades. He clarified, "From people I talk to that have employed women in the field, in the real world, [they] like them…It's actually the work ethic" that sets them apart in non-traditional career fields. Bohnet (2016) noted a more diverse workforce increases productivity as female non-traditional team members often add value to the work teams because of their varied

perspectives and social sensitivity. Participants asserted the value of enrolling more female students in non-traditional programs at the secondary school level because their female students' characteristics and work ethic positively affect the classroom.

Mentoring Relationships While Cultivating Role Models

In this theme, I consider how four teachers of non-traditional female students served as career mentors and developed counterstereotypical role models to support female students. Participants in this study acknowledged the need to mentor and provide role models for non-traditional female students. This theme is consistent with Pierce and Hawthorne's (2011) assertion that teachers who embrace the role of mentor can provide students with information about a career field and specific career training while also serving as a coach or counselor for students navigating future career decisions. Participants recognized their direct influence on students interested in non-traditional career choices at the school level; therefore, they understood their approach to working with female students directly impacts student outcomes (Phillips & Imhoff, 1997). They also suggested women value interpersonal relationships, seek opportunities to help others, make friends, and prefer collaborative classrooms (Konrad et al., 2000; Lester et al., 2017). Participants noted this desire for collaboration could foster opportunities for mentorships and strengthen student-teacher relationships. Additionally, they acknowledged it is essential to provide access to counterstereotypical role models through other women working in non-traditional fields as early as possible to help reduce career bias based on gender (Lufkin et al., 2007; Olsson & Martiny, 2018). As a result, they approached current and former students to fill this role.

Participants noted catching female students early in their high school years allowed them to develop more robust content knowledge and student-teacher relationships, which made a difference in retaining them in their programs. Thilmany (2003) claimed it is essential to provide engaging and relevant learning experiences early in a student's education to keep them interested in CTAE programs and improve program retention rates. Hunter appeared to agree with this idea and added catching students early in their high school years and keeping them committed to a high school career pathway involved providing career information related to job skills and personal interests. Steven worked to appeal to his student's interests and helped them envision career possibilities they had not previously considered. He noted, for example, that although many of his female students may not want to work on a pipeline, they can channel their welding skills in various ways. He said he shared numerous career options in the field within the first few days. These include "artwork or sculptures" or working on "little side job[s] to make some extra money." Connor said he reduces traditional male-oriented stereotypes as a way to orient his students to the automotive field. He explained while the automotive field may still be considered a dirty job, students must be technology savvy to succeed in the field because of the advanced electronics in vehicles today. He noted if students "can't do the electronics on [the vehicle], [they]'re behind." Technological advancements open up new specializations for engineering or design, diagnostics, and repair. Female students are more likely to consider careers reflecting their values (Estrada et al., 2016) and their aspirations for social change (Gerstmann & Denton, 2021). By providing female students access to different career options early in the program and connecting these options to students' values and social responsibilities, participants helped non-traditional

students find careers that fit their goals in fields typically associated with males (ICSPS, n.d.).

Dustova and Cotton (2015) argued effective CTE teachers set high and positive expectations early on for students and proffered the best thing teachers can do is assure students they have what it takes to be successful. Hunter endeavors to establish pathways in his introductory course with new students. He believes students are more likely to persist in CTE if they are engaged in learning and develop a strong foundation, which helps create an appreciation of the subject. This notion aligns with Marzano et al.'s (2003) three principles of classroom curriculum design required for learning, including teacher identification of specific knowledge, the development of structured and engaging tasks, and opportunities for multiple exposures to concepts. Participants used similar guiding principles to increase the exposure of core content knowledge and the engagement levels of the students in their introductory pathway courses to increase the number of students who persist each year. Hunter said, "Usually if I have a girl that makes it through the intro level, they always stay with me." Connor echoed similar sentiments regarding one of his most memorable female students who "came in as a freshman [his] first year, so [he] started out the gate with her." Participants noted a correlation between when students begin a pathway to their success in completing a pathway program.

While high school students often need assistance with post-secondary and career transitions after graduation (Estes & McCain, 2019), participants also helped students transition from middle to high school. Swayne (2018) linked students' transition from middle school to high school with persistent educational and social struggles for students,

including social isolation, which can follow them into adulthood. Based on these findings, this type of social isolation is similar to what female students entering CTE programs dominated by male students may experience. Lloyd noted the difficult transition for students from middle school to high school. Lloyd succinctly captured this concept, stating, "…if you can catch girls in ninth grade before tenth grade, and let them know they can be successful, they will be. Lots of times kids don't know that they can do anything they put their mind to." He argued "catching" his female students early was important,

> Because they [are] not gonna get into hanging around with the wrong people and get into negative behaviors. But you gotta catch their ninth-grade year. You have to catch them fast because if you wait till homecoming time, they've already been hanging with all the wrong guys and then it's a wrap. And for our girls, what's happening is, if you can catch them in ninth grade and stick…it causes them to think about themselves differently. And once their minds [are] expanded, they realize there's other possibilities of what they can do with their life other than reinforcing negative stereotypes. So, catching them when they first come in and allowing them to know there's more possibilities of who they could be, the possibilities are endless. I think that is the most important thing…the most important gift you can give a kid is to allow that kid to see themselves for who they are.

Williamston (2010) also acknowledged a successful transition from middle to high school was important because lack of student success in the ninth grade directly impacts academic failures and behavior problems, influencing future high school dropout rates.

Consistent with these ideas, participants emphasized students who enrolled in their programs during the ninth grade and gained confidence in their skills and abilities were more likely to complete the program successfully.

All participants agreed students spend significant time with their teachers in a typical school year. They suggested this was enough time to build relationships that can ignite a female student's desire to pursue a male-dominated career field. They also understood that their personalities and attitudes influence student-teacher relationships, impacting how well students learn (Eberly et al., 2007; Phillips & Imhoff, 1997). Lloyd had a strong ability to engage socially with students. He presented materials that allowed him to interact with students around their curiosity, interests, and habits of mind to help them become successful trade students. While Lloyd never referred to himself as a mentor, he referenced part of his job was coaching students - a trait mentors possess. Lloyd explained, "Your job, it's just like coaching. Your job is to find that thing, that spark, that a kid has and help them to find the tools that they are going to need to be successful with that going forward." Thus, getting to know his students individually helped him improve instruction by relating learning tasks and goals to their interests.

Participants also recognize the importance of helping female students develop a sense of self-efficacy in a non-traditional career based on their skills and abilities (Lufkin et al., 2007). Hunter believed self-efficacy influences how his female students think about learning processes and strategies, affecting their performance in his construction laboratory. Similarly, Chin et al. (2017) found a significant relationship between the students' positive emotions and performance. Hunter supported his students by promoting enjoyment, pride, and satisfaction, encouraging female students to do well in

his class. While observing his interactions with female students in the laboratory, the researcher noted he was supportive and complementary to his female students, who Hunter acknowledged worked ahead of their male peers. He said some female students possessed more background knowledge than others, but he needed to let all female students know they could be successful in his classroom. He stated, "make them believe that they can do it, and then they'll achieve it." Connor also promoted positive emotions in his classroom. During his observation, he described his classroom environment as a place where female students did not fear failure and were comfortable asking questions and trying new tasks. Connor advises his female students they are the only ones standing in their way if they want to work in the automotive field. He supported female students in believing in themselves and stated, "If [female students] want to do it…[they] can make it happen." Thus, participants proffered that establishing positive relationships improves female students' sense of self-efficacy.

In addition to connecting with their female students, participants also connected with local employers. First, this connection helps employers understand the benefits of hiring women within their organizations. Like recruiting female students into non-traditional career preparation programs, employers, too, must recognize hiring non-traditional employees as a strategic process that starts with recruiting methods that specifically appeal to women (Jobs for the Future, 2017). In addition, long-standing gender stereotypes may prevent employers from perceiving women as qualified candidates in men-dominated fields (Jobs for the Future, 2017). Teachers with experience recruiting and retaining female students in their programs can support employers in this area. Second, this connection helps female students believe they can find employment in

the field and successfully utilize their technical skills. As guest speakers or advisory committee members, their teachers embed these future employers in the high school classroom experience.

Steven asserted local employers do not discriminate against women in the welding field. He explained, "[Employers] take whatever we send them, anything at all. They don't care." Regarding STEM fields, Lloyd stated,

> …the glass ceiling is still a very real thing. But I think that just as far as just getting [female students] to a job, most employers right now are just happy to see any kid that's gonna come to work and not burn the building down.

Hunter recalled there had been a significant change, even in the last ten years, in the growth of women in the construction field. He explained,

> I never saw a lady drive a semi-truck ten years ago on construction sites, and now One of the best ones for [a local contracting company] is a lady. And [the boss] will put her up against any male driver he's got, and he's [got] 20 drivers.

Thus, maintaining strong relationships with local employers helps participants follow workplace trends, allowing them to better support their female students entering the workforce.

Participants also noted women working in their respective fields and said they use those women as examples for their female students. Lockwood (2006) found in career fields in which women were in the minority, they were more inspired by female role models who had attained career success than male role models who had done the same. Women seeing other successful women in the sector provided evidence that they could also be successful in their chosen fields. In this section, participants shared the power of

connecting former female students who finished their programs and worked in non-traditional fields as counterstereotypical role models for current students. Participants determined that former successful female students played an influential role for their current students because they positively impact students' self-efficacy by acting as successful exemplars. Likewise, Olsson and Martiny (2018) argued female students' exposure to female non-traditional role models helps students develop self-efficacy by reducing gender stereotypes related to career choices. However, they cautioned if the role models' achievements feel unreachable or if the student does not perceive herself as similar to the role model, the relationship may be unsuccessful in positively affecting a student's self-efficacy.

According to Eccles and Wigfield's (2020) explanation of expectancy theory, students' motivation to pursue an activity is a function of their beliefs about the likelihood of success in that activity and the value they perceive it to have for them. Thus, participants believed if their female students see someone meaningful to them pursue a technical career, they may infer a technical career is a good fit for them. Moreover, this belief may motivate them to persist in their courses. Such inferences are also likely to increase the value of a CTAE career. Lloyd noted:

> It's pretty cool that [students] tell their siblings about [the class], and actually, a lot of my non-traditional students are from other communities especially [the] Hispanic community. But a lot of the kids, they will tell their family members about it and they will have their family members take the course. Or people have graduated, and a lot of my girls have had one of their siblings or a cousin who have come through my course. So, it's really been growing and growing.

Lloyd attributed the enrollment growth of female students in his STEM program to the successful experiences of former female students and their family members.

Hunter had several former students who have been successful in the construction field and shared, “the two most successful girls I ever had both left my class and didn't really know what they wanted to do. And they were presented the ASVAB and they just aced the ASVAB because of my class.” As a result, they both went into construction management careers in the military. He described one student's experience in more detail stating,

> One of my very first students turned out to be the best female [students] I’ve ever had, and she’s in the military now…She was extremely, extremely good. She actually competed for me in SkillsUSA competitions. She was a sponge, and she wanted to learn more and more and more about it, and she’s now… a construction site supervisor for the military. She went on to Georgia Tech and got her construction management degree, and then she went into the military. And she’s done extremely, extremely well with it…I definitely had to recruit off of her.

Hunter encouraged former students to come to his classes and speak, and he shared it helped with student recruitment.

Connor described one of his former female students who entered the family automotive business and now applies the skills she learned in his class, both professionally and personally. He explained,

> [She is] now working in the field. Her daddy acquired a wrecker business, and she drives those trucks. She hooks through the cars; she fixes the cars. She has her

own motorcycle; she does her own work on her motorcycle. She's living the life. She's putting skills she learned here… to work every day in what she does.

While he had not yet had her address his class, he expressed he planned to ask her to speak in the future.

Lloyd described the importance of opening doors and developing a mentor relationship in "…getting students to a place where they can see themselves being successful." He explained,

> Some girls only took the class because I allow them just to walk through my class one day. They just literally couldn't envision themselves doing any of the stuff that I do in my class, but once they saw other girls in there doing it, [they believed they could]…[When] they see other kids being successful or when they come in the classroom, and they are able to hold that free object, it ceases to be a theory and becomes something tactile, which is something that can be translated to a practical goal that they can accomplish.

Through mentoring and providing female students access to other female role models, participants increased their chances of recruiting and retaining students and improve their students' chance for success in a non-traditional career field.

Chapter Summary

This chapter discussed emergent themes identified after carefully analyzing interview transcripts, observation notes, memos, and documents. Values coding highlighted participants' values, attitudes, and beliefs that I used to organize narratives into themes (Daiute, 2014; Saldaña, 2016). Four major themes emerged in bringing participants' experiences to the forefront: reinforcing equality with the subtheme of safe

spaces, structures supporting equity, femininity accentuating soft skills, and mentoring relationships while cultivating role models.

The findings, connected to existing literature, were presented as themes connecting participants' experiences to the educational practices of male teachers working with female students in non-traditional career and technical education programs. Chapter 6 concludes the study, including how the themes connect to the research questions. The researcher also addresses the study's limitations, recommendations for future research, and conclusions.

Chapter VI

Discussion and Conclusions

In 1972, the U.S. federal government passed Title IX of the Education Amendments Act to protect women from discrimination under any education program or activity receiving federal funds (USDOE, n.d.-b, para. 2). However, Title IX has failed to boost female enrollment and completion rates in gender non-traditional high school Career, Technical, and Agricultural Education (CTAE) programs in Georgia. Female enrollments consistently trail male students (GDOE, n.d.-e). In 2019, only 13.37% of females completed pathway programs in a gender non-traditional field like automotive or welding (GDOE, n.d.-e). This trend in Georgia's secondary schools mirrors the national workforce, in which areas dominated by men employ only 7.1% of women (Hegewisch & Baris, 2020). As a result, an extensive gender occupational gap continues to persist as a dominant characteristic of the U.S. labor market (Hegewisch & Hartmann, 2014). This gap negatively impacts the workforce because available jobs remain unfilled, and gender career segregation perpetuates the wage gap between men and women (Equitable Growth, 2017).

In this narrative inquiry study, I explored the attitudes of the male professional career and technical educators to inform an understanding of the conditions impacting female students' participation in non-traditional career pathway programs in Georgia secondary schools. According to Phillips and Imhoff (1997), many factors contribute to student career selection. However, teachers directly influence students interested in non-traditional career choices at the school level. I conducted this study at two secondary schools of similar size and demographic characteristics in Southwest Georgia. Four male

teachers of female non-traditional CTAE programs participated in this study. This research highlights the experiences of female CTAE students as perceived by their male teachers.

The following research questions guided this study:

RQ1: What are the experiences of the male professional career and technical educators of gender non-traditional career pathway programs in Georgia secondary school districts with an exemplary record of teaching female students and preparing them for high-wage, high-skilled, and in-demand jobs?

RQ2: How do educator attitudes toward education and gender equity affect the development of equitable non-traditional programming and response strategies in Georgia school districts?

RQ3: What organizational practices did exemplary male CTAE teachers responsible for gender non-traditional career preparation programs in Georgia secondary school districts utilize when recruiting and retaining female students for technical, trade, and industry jobs?

I used Seidman's (2013) three-interview process to collect participants' stories in their natural settings. The first interview focused on teacher backgrounds and prior work experience. The second interview focused on teacher experiences with female students and gender equity issues within the CTAE program. The third interview allowed teachers to reflect on their experiences to determine significance and clarify meaning. Teachers reviewed interview transcripts to verify accuracy and correct any errors. A classroom observation, including a climate audit checklist, provided details about the setting and facilitated data triangulation. Documents from school websites and conversations with

CTAE directors at each school provided information about participants' programs, student course registration procedures, and general CTAE recruitment practices. Narrative inquiry methods guided the data analysis process, with specific attention to meaning, social significance, and purpose as they transition from gathering living stories to re-telling stories (Clandinin & Connelly, 2000). I addressed the study's trustworthiness by collecting sufficient data to provide detailed, thick descriptions, utilizing multiple data sources to aid in triangulation, and conducting member checks to identify personal biases and correct misunderstandings about the data.

Data analysis began with a systematic search and organization of transcripts, followed by in vivo coding of transcripts and observation notes, which allowed for open coding prioritizing participants' voices (Saldaña, 2016). Next, more substantive categories emerged based on participants' words related to their concepts and beliefs (Maxwell, 2013). Those categories helped establish initial codes using two-letter abbreviations based on four of the underlying concepts of the study. The second coding cycle utilized values, which is helpful for studies looking at intrapersonal and interpersonal experiences (Saldaña, 2016). Next, those codes were narrowed down and grouped into categories focused on values, attitudes, and beliefs (Saldaña, 2016). Finally, consistent codes were linked together based on their categorical relationships, and pattern analysis of codes allowed for the development of themes (Patton, 2015). Four significant themes and one subtheme emerged from the data: reinforcing equality with the subtheme safe spaces, structures supporting equity, femininity accentuating soft skills, and mentoring relationships while cultivating role models. The following includes a

discussion of the three research questions related to the study's themes and the implications, limitations, and recommendations for future research.

Research Questions: Summary Discussion

This section connects the research questions to the study's findings through the four primary themes and the conceptual framework. I also connected the questions to the related literature to comprehensively examine gender non-traditional career preparation programs.

RQ1: What are the experiences of the male professional career and technical educators of gender non-traditional career pathway programs in Georgia secondary school districts with an exemplary record of teaching female students and preparing them for high-wage, high-skilled, and in-demand jobs? Participants shared their personal experiences in the first interview of the three-part series and their professional experiences in the second and third interviews. According to Huber et al. (2013), researchers learn more about teacher knowledge and practices using narrative methods to gather their stories. Narrative inquiry provides a way to better understand who teachers are and how they grow and change as educators, including their teaching styles and strategies in the classroom, based on their experiences (Huber et al., 2013). Detailed responses revealed similarities and differences in each participant's path in becoming an educator and the experiences that followed during their teaching careers. These experiences influenced their work with non-traditional female students.

All participants grew up in South Georgia, although Lloyd moved to New York for several years during his elementary and middle school years. Lloyd is African American, while Hunter, Connor, and Steven are White. Family structure was different

for all of the participants. Hunter grew up with a single mother, as did Connor until his mother remarried when he was five. Both expressed that their grandparents played an essential role in their lives growing up. Hunter grew up in a small house with his "working class" family.

Conversely, Steven grew up with both parents, a brother, and a sister. His father was a high school football coach, which caused them to move to various cities and towns throughout Georgia during his school years. Lloyd felt his life growing up was "nothing special" and believed it must have been like everyone else's. Growing up on a farm, Connor "knew what hard work was" and did not want to graduate high school to go into the real world. All participants were teaching in the same school system where they attended high school.

Each participant had educational and work experiences before becoming a CTAE teacher and credited an individual with helping them decide to become an educator. All participants spoke of a strong female influence in their lives – a mother or a wife – who brought the idea of teaching to life. For Lloyd, his mother – an educator– reminded him of his promise to give back to his community if he had a chance. As a science education major, Lloyd never worked in the STEM field. However, he credited an engineering internship and his work in the science classroom with preparing him to move into a STEM program. Hunter worked for UPS when he encountered the school system superintendent who changed his career path. His wife, a middle school teacher, and the addition of a daughter to their family helped him decide to pursue a career as an educator. He earned a degree in Early Childhood Education and worked briefly as a social studies teacher before moving into the construction program – a program he completed while in

high school. Connor earned a degree in diesel mechanics from the local technical school and spent 19 years working for a company in the transportation industry. His wife, the high school's new media specialist at the time, influenced him to change his career path. She told him about the retiring automotive instructor and thought he would be a good fit. Steven credits his father with helping him decide to become an educator, although it was not what he wanted to do when he first graduated high school. He earned several degrees from the local technical school, including one in industrial maintenance, one in electrical systems, and one in welding, before doing millwright work for ten years. His wife, a science teacher at the school, also influenced him to teach and believed his past work experience qualified him to teach.

Since Hunter, Connor, and Steven entered education with experience working in the industry and not with degrees in CTAE fields, they completed the New Teacher Institute program at Valdosta State University to obtain their certification. Lloyd finished his degree in science education and did not have any additional steps to become certified in the STEM field. The participants' demographics and paths to educator certification are consistent with the finding that most instructors in the trade and industry fields are White males with prior industry experience (Williams et al., 2018).

Though no longer working in the industry, participants indicated they kept close ties with business and industry partners. They said they know job opportunities in their communities and throughout the state, where employers need workers with technical skills to fill openings. These education-industry partnerships led participants to explain that local employers were beginning to recognize what they had long understood – female students in non-traditional programs have much to offer gender in non-traditional

professions. Participants revealed that male students might be more prepared for higher production levels but lack organizational and interpersonal skills female students bring to a non-traditional environment. As Bohnet (2016) noted, adding diversity to a workforce may increase productivity because women bring new perspectives and forms of socialization. Hunter noted changes he had seen recently in the industry and shared, "I never saw a lady drive a semi-truck ten years ago on construction sites, and now one of the best ones for [a local contracting company] is a lady." He explained the company owner had at least 20 drivers, and Hunter believed he would put her up against any of them. Connor stated many employers appreciate female employees because of their "work ethic." Participants said they use education-industry partnerships to show industry leaders the work of female students in the classroom to positively influence their perceptions of including women in a male-dominated workforce. These partnerships also allow female students to get to know employers in the industry, which helps them believe women can find employment in the field and successfully utilize their technical skills in the real world.

The participants' experiences in the industry combined with their experiences in the classroom led them to utilize teaching methods consistent with constructivism, identified as a theoretical framework of the study. Ertmer and Newby (1993) explained constructivism focuses on providing authentic experiences in a setting that mirrors the real world. Participants supported an interactive approach to teaching and learning where students constructed knowledge and regulated the learning process (Doolittle & Camp, 1999). Participants used their industry and educational experiences to design appropriate differentiated instructional activities, supporting female students as they prepared for

challenges they may encounter in non-traditional workplaces (ICSPS, n.d.). Connor, for example, understood women in the automotive field may encounter challenges due to their physical strength or size. As a result, he allowed students to use classroom resources differently but ultimately required all students to produce the same results. Lloyd, Hunter, and Steven also recognized the need to have various tools and equipment on hand to support and engage female students while making them feel comfortable in the learning environment. Smaller hand tools and safety gear such as jackets and gloves make the learning environment more equitable for female students because it allows them to fully immerse themselves in a program that mimics on-the-job tasks.

Participants' educational experiences also provided insight into student learning styles and the need to utilize different instructional methods to support female students. Many women value interpersonal relationships (Konrad et al., 2000), which means female students often seek classrooms focused on collaboration and interaction (Lester et al., 2017). Participants incorporated instructional strategies that appealed to female preferences while focusing on producing equal and equitable results. Lloyd engaged students in various activities, including small group and individual hands-on tasks. Connor also used a collaborative approach in his automotive laboratory by assigning students to mixed-gender teams. He required all students to be equal, active participants during the observation when working on an oil change and tire rotation. Yet, he allowed students to utilize different methods when performing tasks.

Hunter's construction laboratory was engaged in individual projects during the observation. He noted female students were completing tasks ahead of their male peers, and his male students often saw how well their female students performed. As a result,

his male students often asked their female peers for advice, asking, "How did you do that so quick[ly]?" Female students were frequently given leadership roles in the classroom by their instructors and peers, which supported their desire to work with people and help others (Konrad et al., 2000). I analyzed these ideas in the structures supporting the equity theme. This theme focused on the teachers' ability to produce the same positive outcomes regardless of the background, prior knowledge, or unique challenges female students bring into the learning environment by focusing on differentiated instruction, believing students can achieve, and promoting respect in the learning environment.

All participants worked with non-traditional female students early in their educational careers, which helped set a precedent for female success in the classroom. Lloyd credited one of his female middle school science students with helping him see the importance of transitioning into STEM to support students like her. He recalled she was interested in 3D and prosthetics and believed having access to a STEM program could help her reach her goals. Hunter recalled that one of his first female students was the best he had ever taught. She left his construction program, studied at the Georgia Institute of Technology, and later served in the armed forces. Connor remembered several female students early in his teaching career. He named one automotive student of the year based on her skill and dedication to the program, making her stand out from her peers. Steven described a female student who attended welding competitions and performed well against her male peers. He remembered she was a good student in the classroom and also good at welding. The participants' positive experiences with female students early in their educational careers helped shape their attitudes and mindset regarding equity and perceptions of student success. Positive student-teacher relationships reinforced the way

participants perceived female students and their ability to succeed in the educational environment.

I aligned the experiences of the male professional career and technical educators of gender non-traditional career pathway programs in Georgia secondary school districts with an exemplary record of teaching female students. The theme of reinforcing equity explained how participants used their resources and managed their classrooms while setting equal expectations for all students. The second theme, structures supporting equity, described how teachers utilized their experiential knowledge to differentiate instruction, believed in their students' ability to succeed, and promoted respect within the learning environment. The theme of femininity accentuating soft skills focused on the participants' desire to accept their female students as they are and to help them use their soft skills to differentiate them from their male peers in a gender non-traditional program. Finally, the theme of mentoring relationships while cultivating role models emerged from the data concerning how participants use the power of positive relationships to become mentors to their female students. Mentoring relationships allowed them to develop counter stereotypical role models from within their programs to recruit and support the next group of non-traditional students.

RQ2: How do educator attitudes toward education and gender equity affect the development of equitable non-traditional programming and response strategies in Georgia school districts? According to Nanda et al. (2018), teachers must recognize that their attitudes, beliefs, and behaviors influence the attitudes, beliefs, and behaviors of non-traditional female students in their classrooms. Teachers of CTAE programs must understand the purpose of providing high school graduates opportunities to prepare for

future careers by offering pathways to high-wage, high-skilled, and in-demand jobs (USDOE, 2016). Participants shared a similar attitude about this purpose. Each participant expressed exposure to CTAE courses was essential to prepare students for the future, though their career ideas differed. Lloyd and Steven specified they were preparing students for work and joining the workforce. Connor said CTAE prepared students for "the next chapter of their lives" but indicated it could be college or a career. Hunter's goal was to produce "marketable employees," but he wanted to make students better than when they arrived in his class.

Participants did not change their views regarding the purpose of CTAE based on who they had in their programs, and they desired to help all students reach their educational and career goals. Speaking about supporting students led participants to recall many former student encounters during their careers. Participants described how their CTAE program influenced a female student's career path. For Lloyd, he recalled a student attending the Savannah College of Art and Design (SCAD) and doing "really big things down there" while using skills she learned in his class "in her movie industry job." He recalled another student who was interested in "mechanical engineering" and was "ultimately [able to] find employment at an institution that works with NASA." Hunter recalled a female student who went to the Georgia Institute of Technology and became a "construction site supervisor for the military." He believed she "aced the ASVAB because of [his] class," which supported her future educational and career goals. Finally, Connor recalled a student whose father acquired a wrecker business. As a result, "she's putting skills she learned here…to work every day [there]." He explained she loves what she does and had the opportunity to support her family business because of the skills she

gained in his automotive program. As participants shared these examples, they demonstrated the pride they held for their students. They were excited about the advantages participating in CTAE programs provided these young women to transition from high school into college and careers.

Participants were encouraged by the success of their former female students and used their stories to inspire others. Olsson and Martiny (2018) noted students exposed to counterstereotypical role models must be able to see themselves in a similar position to develop the self-efficacy needed to reduce gender stereotypes in careers. Participants recruited and retained female students in their programs by using the stories of former students or allowing them to return to share the stories themselves. For Lloyd, finding role models was about the importance of family connections. He explained former students often told family members about his class and stated, "…a lot of my girls have had one of their siblings or a cousin… come through my course. So, it's really been growing..." Hunter referenced a successful female graduate of his program and stated, "I definitely had to recruit off of her…" Lloyd recalled female students becoming interested in his class after walking through one day because "…they just literally couldn't envision themselves doing any of the stuff that I do in my class, but once they saw other girls in there doing it" they believed they could do it, too. Using former students helps solve the 'chicken and egg' dilemma presented by Gerstmann and Denton (2021). The authors argued that gender-nontraditional career fields lacked diverse workers, making finding role models to encourage the next generation of workers difficult. Participants promoted a grow-your-own attitude and believed the best way to find role models for future students was to support their current students in their success.

To help ensure female students' success, participants demonstrated positive attitudes toward gender equality and equity issues. These male educators were keenly aware that forms of gendered oppression can filter into the high school classroom and affect how girls learn. Therefore, they believed their role was to help equalize the playing field and support equity if girls succeed. Lester et al. (2017) noted female students were likely to encounter gender microaggressions or minor insults from teachers and peers simply because they are female. Participant experiences, however, painted a different picture of their gender in non-traditional classrooms. Interviews and observations revealed participants believed in the importance of respect in the classroom, which I described in the theme structures supporting equity. Participants recognized that respect was not always automatic, especially between students. They emphasized the need to teach respect and personally demonstrate the attitudes and behaviors expected from students. Lloyd was respectful when interacting with students and often addressed them directly by name when engaging with them. Hunter was also respectful as he found time to interact with his students individually to ensure they were on task and felt supported in the classroom. Connor and Steven had similar approaches as they moved through their groups of students to monitor their work and support their progress as they completed several tasks.

Participants also utilized classroom management strategies and had processes to handle any disrespect or harassment as soon as it occurred. Hunter recognized respect is not always automatic because students have different personalities and backgrounds, but he did not tolerate his male students misbehaving with his female students. Participants had procedures to support female students who felt disrespected or harassed in the

classroom. First, participants empowered female students to stand up for themselves. Connor, for example, had a female student stop a peer from harassing a male student. While he disagreed with how she handled the issue, which resulted in a fight, he explained, "She thought [she] was right, whether it was right or not… and that's how it went." Second, teachers provided students opportunities to come to them for help. Hunter noted some of his female students would not report an incident during class but "would come to [him] at the end of the class or after school" so he could address it. Other participants expressed similar views; some even turned to their school administrators to handle serious issues. For example, Connor recalled a female student who told him, "…somebody had grabbed her buttocks, and there was the greasiest handprint you ever saw on those white jeans." He turned the incident over to his administrator to handle the situation as a serious discipline issue.

While issues of harassment are not always avoidable despite a teacher's best intentions, participants focused on providing safe spaces for their female students. The sub-theme of safe spaces described how participants in this study created a physical environment that appealed to female students and protected them from potential harm. Hunter recognized "…there are areas in the classroom where female students may feel unsafe if the class has a majority of male students." As a result, he considered classroom management a priority. In addition to providing a safe space for students, participants indicated it was also essential to protect themselves from any appearance of wrongdoing when female students were involved. Steven noted, "The only time, I feel awkward teaching a young lady is if for some reason she's in a welding booth, and I have to go in there with her, just me and her." Hunter explained he did not want to put himself in a

position where there could be an accusation of misconduct. Hunter described his discomfort sharing a tight storage closet in his lab with female students, "I don't think nothing about going there if it's another guy in there, but if there's a girl in there, I don't go in there." An environment centered on respect and safety allowed female students to feel supported and comfortable while learning. Estes and McCain (2019) noted students must enter a safe, welcoming environment to focus on building their academic and technical skills.

During their interviews, participants expressed some views considered stereotypical or gender-biased (Reay, 2001). Hunter described a student as a "very sweet girl." He also explained while he does not "treat [girls] any differently than the other 27 guys in the class," he uses respectful gestures like opening doors or lifting heavy objects and "the stuff that I want my daughter to have from her boyfriend." These gestures could be considered a form of gender stereotyping. Steven shared that if his female students had "a personal problem," he sent them "across the hall to [a] lady teacher" for help.

Nevertheless, participants also recognized all students could be emotional at times, depending on the circumstances. Connor described a pregnant student who broke down in tears due to "morning sickness" but also recognized he had "guys break down" in his classroom for various reasons. While participants expressed views some may consider stereotypical (Chapman, n.d.), none were presented with ill-intent or used to imply women were less capable than men. Participants worked hard to avoid stereotypes and biases described by Andrus et al. (2018), such as not providing the same opportunities or quality of feedback male students receive just because students were female.

Participants provided students equal opportunities to participate in daily classroom activities and competitive events outside the classroom. They did not limit students' choices because of gender but encouraged them to become involved as much as possible in the program. Steven described one of his female students who "went to all the welding competitions with us" and "competed pretty strongly." Hunter recalled a female student who competed for him in SkillsUSA competitions. He described her as "a sponge" who just "wanted to learn more and more" about the construction trade. Lloyd encouraged his students to participate in competitions to teach and learn from others. As he says, "success breeds success," and competitions get students "feeling good about life" and good about their career possibilities. He says his competitions are "pretty much an even split" between his male and female students, which he does intentionally "because lots of times girls are discouraged about hard sciences." Educators expressed active participation was vital for success in the CTAE classroom, and competitions outside the classroom help build students' confidence and skills. This confidence helps build female students' student self-efficacy, supporting the idea they can be successful in a non-traditional career field (Lufkin et al., 2007).

Participants also expressed that their female students positively impacted their CTAE programs and brought special skills not always found in their male peers at the secondary level. Teachers explained the soft skills girls bring into the classroom helped strike a balance often missing in a classroom full of boys. The theme of femininity accentuating soft skills explored these attitudes. While male students often focus on the result, female students frequently question a task's why and how. Participants, therefore, did not have an attitude focused on changing female students to fit the norm but on

acceptance. Participants accepted female students as they were and helped them build on their strengths. As Hunter indicated, "girls will ask questions, where guys [are] hands-off and [don't] even think about it, and then they'll ask why I did it later." Steven agreed with this assessment and shared "girls [pay] a lot more attention to detail than the guys do." He commented on his female students' attention to detail and need for perfection while many young men he teaches "just take the metal and tack it together and hope for the best." Lloyd agreed his female students had the soft skills to succeed and stated, "…a lot of my non-traditional students have actually been a lot of my stronger students. And they've taken and run with it, and it really makes me proud." Overall, participants recognize female students' characteristics and work ethic add value to the learning environment and understand there is no need to expect them to act like their male students to succeed.

RQ3: What organizational practices did exemplary male CTAE teachers responsible for gender non-traditional career preparation programs in Georgia secondary school districts utilize when recruiting and retaining female students for technical, trade, and industry jobs? While Title IX and the Education Amendments Act of 1972 protect women from discrimination, interest in a career field does not always push female students to explore gender non-traditional fields (Allison & Cossette, 2007). Milgram (2019) argued recruiting women to a non-traditional program in the same manner as men do not always work. Therefore, there is a need for a female-focused recruitment campaign for gender non-traditional programs. Lufkin et al. (2007) suggested eliminating biased recruitment materials focused on gender-traditional norms and presenting career pathway programs by aligning them with student interests.

Participants indicated there was no school-wide consistency in recruitment for CTAE programs. Therefore, no additional recruitment campaigns focused on gender non-traditional students in their schools. Hunter said the counselors at his school sometimes created a barrier to enrolling students in CTAE classes. He explained, "our guidance counselors still drive into every student, you've gotta go to college. You're not going to be successful if you just have a high school diploma." He noted this approach led students to believe they were "not going to be successful at CTAE." And although his school has allowed middle school students to tour programs in the past, COVID protocols interrupted that recruitment method in recent years. Connor was unsure of his school's current course registration process, and he preferred the days when students met with him to "write their name on a signup sheet" if they were interested in the class. He feels current registration methods allow counselors to sometimes place students "…in a class that they necessarily don't want to be in." Hunter, who is at the same school as Connor, agreed the course registration method did not always work in his favor. Sometimes counselors "just got to have somewhere for these five kids to go" and end up placing them in his class until it is full, and they move on to the next class with space. Steven's CTAE director helped him correct registration issues with students. He said his director "magically" made students who wanted to be in the class appear on the roster, helped remove students who refused to do the work, and requested a change within the first few days of each semester.

Lloyd relied on word-of-mouth to recruit students into his STEM program and noted, "if you have a superior product, that's gonna sell." He shared that students, especially his female students, were often recruited by family members such as siblings

or cousins who were recently enrolled in the class or had already graduated. Hunter recruited female students based on the success of his former students. He referenced a successful female graduate of his program and stated, "I definitely had to recruit off of her…" Hunter also encouraged former students to come to his classes and speak and help with student recruitment. Participants also tried to recruit students into their programs as early as possible in their high school careers. Lloyd, for example, understood the difficult transition for students from middle to high school. He stated, "you gotta catch their ninth-grade year. You have to catch them fast because if you wait till homecoming time, they've already been hanging with all the wrong guys, and then it's a wrap…"

Participants used various methods to retain students in their programs once enrolled. Consistent with Marzano et al.'s (2003) classroom design principles, participants worked to increase the exposure of core content knowledge and the engagement levels of students in their introductory pathway courses to increase the number of students who remain in their programs each year. Hunter noted, "Usually, if I have a girl that makes it through the intro level, they always stay with me." Participants ensured students had the academic and technical skills to support students self-efficacy successfully. When students believed they could be successful, it encouraged them to feel more positive about being enrolled in the course. Chin et al. (2017) found a significant relationship between the students' positive emotions and performance. Participants supported the positive feelings of success by keeping students engaged in enjoying the course and being proud of their accomplishments.

Retainment, however, is due to more than just exposure to content and students' engagement in the learning process. Participants noted enrolling female students in their

programs during their ninth-grade year also allowed them to develop more meaningful student-teacher relationships, which made a difference in retaining students in their programs. Strong student-teacher relationships helped participants connect with their female students and better understand their needs and motivations, making connecting students to different career possibilities easier. Steven appealed to his students' interests and helped them envision career possibilities they had not previously considered, such as welding metal as artwork. Connor focused on specializations for students in engineering or design and diagnostics and repair and noted if students "can't do the electronics on [the vehicle], [they] 're behind." Participants helped non-traditional female students find careers fitting their goals in fields typically dominated by males by providing them access to different career options early in the program and by connecting female students' career aspirations to their values and social responsibilities (ICSPS, n.d.). This perspective is consistent with Gottfredson's (1996) career development theory which indicates the final life stage, orientation to the unique internal self, begins around age 14. First entering high school, students at this age may decide whether careers are right or wrong based on overt or implied unfavorable messages from peers, educators, or parents (Hamilton et al., 2015).

Female students who elect to pursue a non-traditional career choice must feel encouraged and supported inside and outside the classroom to continue down the non-traditional career path (Lufkin et al., 2007). Thus, participants recognized successful female student retainment included the presence of a welcoming and safe environment and equal and equitable support from teachers. Hunter realized that "the dust, the dirt, the grime" associated with his program might limit female participation. So at its most basic

level, a safe space is kept clean, free of hazards, and is designed to be gender-neutral. Teachers monitor students, and small spaces such as closets or storage rooms are not easily accessible without teacher knowledge. Hunter acknowledged, "…there are areas in the classroom space where female students may feel unsafe…" He noted this might occur for some students when they are the minority in class.

Participants also recognized equity of instruction was needed to meet the need of all students and focused on using differentiated instruction and setting high expectations. Creating an equitable learning environment required the purposeful utilization of strategies that met students' needs and helped them reach their full learning potential (Wormeli, 2006). Lloyd needed various tools and equipment to engage his female students. He noted he "had to buy a whole program on this iPad…" to help his female students engage with the content by manipulating their snapshots into "the perfect picture." Hunter noted his lab needed tools "that would be more girl fitting and specialized with maybe battery-powered lithium cordless tools lighter than a big motorized tool…" for his female students. Connor understood his expectations strongly influenced student achievement, worked to convey acceptance messages, and supported the idea that female students can be successful at learning something new (Mesler et al., 2021). He said his expectations do not change based on students' background, economic status, or gender. He explained, "This is automotive. This is what we do. Here are my expectations…and I could [not] care less about all the other stuff." All four participants used various methods to differentiate instruction, support student growth, develop student self-efficacy, and cultivate attitudes of respect to create an environment free of harassment to retain their female students in gender non-traditional pathways.

Implications and Recommendations

In this study, I sought to explore the attitudes of four male teachers of female non-traditional career preparation programs in Southwest Georgia to better understand the conditions supporting or inhibiting girls' participation in non-traditional career pathway programs at the secondary level. Most of the findings confirmed previous research studies cited in the related literature, though previous studies focused on students, not teachers. Existing research centered on students and the experiences inhibiting or supporting their participation in non-traditional programs. This study focused on the teachers of non-traditional programs and what they were doing to hinder or facilitate female student success in their non-traditional programs.

Notably, participants in this study did not think they were doing anything special with their female students and were surprised their enrollment and retention numbers were higher than the state average. Throughout the research, these teachers consistently reinforced their efforts to treat female students like male students. Their stories, however, revealed the steps they have taken to make the learning environment not only one that is equal but also one that is equitable for female students consistently underrepresented in female non-traditional CTAE programs. They described strategies to provide a classroom environment where all students could experience success. Their classroom interactions and instruction demonstrated elements of best practices highlighted in previous literature. Participants, for example, understood that male and female students prefer to learn differently (Lester et al., 2017; Ray et al., 2018). Therefore, they differentiated instruction for students to provide their female students opportunities for collaboration and time to build relationships.

While this study can provide insight for other teachers of non-traditional female students, there are broader implications for various groups associated with CTAE programs. These other groups include CTAE directors at the local level and CTAE state program administrators responsible for maintaining state targets for Perkins Core Indicators of Performance, federal agencies accountable for setting CTAE policies, and post-secondary educators preparing the next generation of CTAE teachers.

Teachers of Female Non-Traditional Career Programs

In this study, participants' revealed their experiences working with female students in gender non-traditional CTAE programs in two rural school districts in Southwest Georgia. Through these stories, other teachers of non-traditional female students may better understand the importance of creating an equitable learning environment supporting female students as they build self-efficacy and experience success in a male-dominated program. Research indicates relying on a null climate (Freeman, n.d.), which focuses only on equality and does not encourage or discourage students of any gender, discriminates against women. The societal occupational stereotypes reinforce non-traditional career programs not designed for them. These results may encourage teachers to consider classroom and laboratory design and classroom management strategies emphasizing safety and encouraging respectful behaviors. It may also help teachers to better understand how female students' limited technical backgrounds, preferred learning styles, and career interests impact instructional strategies and the need for differentiated content, process, and project elements to allow female students to make meaningful connections to non-traditional career programs. While it is perhaps more important to consider these strategies because female students

are in a class, providing for male students is no less important. If implemented correctly, teachers can better support all students in the learning environment.

Preparing equitable learning environments and teaching strategies in CTAE is not always easy. However, it can be more accessible if teachers develop meaningful relationships with students focused on respect and success. Teachers can develop positive relationships with students as they get to know their motivations and support their future aspirations. Teachers can also use the stories of successful students to help connect with current students and counter stereotypical role models to help female students envision themselves working in a non-traditional field. Young women are special students in CTAE who bring many unique skills, such as organizational and interpersonal soft skills. For this reason, teachers must keep strong connections with business and industry partners to promote their students' academic, technical, and soft skills to help change perceptions about women working in non-traditional careers and promote the benefits of a more diverse workforce.

CTAE Directors and CTAE State Program Administrators

While teachers support student success in the classroom, CTAE directors and state program administrators are responsible for supporting CTAE teachers. Additionally, these groups are accountable for meeting state targets for federal Perkins Core Indicators of Performance levels each year. As a result, these groups must focus on the importance of increasing female non-traditional enrollment numbers so they are on track with male non-traditional program enrollment numbers. While enrollment and completion rates in non-traditional programs have risen for both genders from 2017 to 2018, female students continue to lag behind their male counterparts in both areas (GDOE, n.d.-e).

CTAE directors monitor local performance levels compared to state target levels on the Perkins Core Indicators of Performance at the local level. Directors should review data, disaggregate subgroups such as gender and ethnicity, and determine if non-traditional program participation is an area that needs to be addressed. This distinction is crucial because they are responsible for developing an improvement plan through the Comprehensive Local Needs Assessment (CLNA) process every two years. This process is ideal for directors to solicit feedback from program stakeholders, including teachers, students, parents, and community and business leaders, to help identify barriers to increasing non-traditional enrollment and develop strategies to implement at the local level (GDOE, 2019-b). CTAE directors can also influence the counseling and registration processes implemented in schools in their districts. Participants indicated a lack of general guidance and counseling efforts focused on CTAE programs and specific counseling skills related to non-traditional career choices in their school-wide course registration efforts. Directors, therefore, can ensure targeted recruitment efforts to the right target audience to decrease passive discrimination, which school personnel may overtly or inadvertently employ to increase female participation in non-traditional programs (Milgram, 2019). Attention to strategies for improvement and targeted recruitment methods should result in more female students enrolling in non-traditional programs. As more female students finish secondary non-traditional career preparation programs, they can build their self-efficacy and continue their studies at the post-secondary level. These attitudes ultimately support these female students' chance to join the workforce in a non-traditional area.

At the state level, CTAE program administrators are responsible for monitoring Perkins Core Indicators of Performance levels in each district and approving CLNA improvement plans every two years. State program administrators also support local systems by developing and providing targeted professional learning on topics where improvements are needed. Participants indicated they did not recall any recent professional development offered by the state regarding non-traditional programs. The Georgia Department of Education website contains limited information on non-traditional occupations, with no program specialist listed as a contact and only three links, all to outside sources (GDOE, n.d.-c). State CTAE administrators can solicit feedback on issues surrounding gender non-traditional programs and provide professional learning to local directors and teachers to support their efforts at the local level. State CTAE administrators can also investigate the benefits of developing a statewide network of teachers who can share their experiences with non-traditional students as a professional learning community. Many school systems, especially smaller schools in more rural settings, likely have few teachers who work with gender non-traditional students. Facilitating an online community where teachers can access a more comprehensive network of teacher experiences may support professional growth. State administrators' support of teachers and directors can increase teachers' ability to recruit and retain female students in non-traditional programs at the local level.

Federal Agencies Responsible for CTE Policies

The 1796 amendment to the Vocational Education Act of 1963 included the goal of overcoming sex discrimination and sex stereotyping in occupations and was the first step in explicitly addressing gender segregation in CTE programs (Nanda et al., 2018). Since then, corresponding federal agencies have been tasked with monitoring gender non-traditional program enrollment and retention nationwide. State plans provide educational and community stakeholders input, such as directors, teachers, and business and industry partners. Federal agencies responsible for CTE policies can continue to review state plans for identified barriers and strategies impacting non-traditional career preparation programs. They can also offer support to state CTE administrators through grants or professional learning opportunities based on what is working around the nation. Federal agencies can help bridge the education and industry gap by identifying occupations with the most significant occupational gaps and brokering ways for educational institutions to help meet industry needs. This cooperative effort may help fill labor shortages and reduce the wage gap between men and women, which is prevalent due to occupational segregation (Equitable Growth, 2017).

Students in Non-Traditional CTAE Programs

Participants in this study revealed conditions supporting or inhibiting girls' participation in gender non-traditional career preparation programs at the secondary level. In doing so, they demonstrated an understanding of important qualities female students possess, which make them successful in these programs. Most of the students in these programs continue to be male, which perpetuates gender occupational stereotypes. Understanding issues of gender equality and equity and the value female students bring to

non-traditional programs would benefit male students because they would learn more about their peers, the value female students bring to the classroom, and the benefits of learning and working in environments that contain diversity.

Limitations and Delimitations

Identifying the limitations of a study contributes to the credibility and trustworthiness of its findings (Patton, 2015). I selected a small sample size to allow deep and focused analysis. Thus, the narrow representation cannot generalize my results to a larger population. Another limitation is the lack of racial diversity in participants. Three participants were White, and one was Black. When conducting interviews with participants, I did not address race issues other than asking each participant to identify their race and noting the gender and race of students in class during the observation. This limitation may impact the transferability of results to groups not represented in this study. I limited my research to the geographic location of Southeastern America. Specifically, I drew my participants from two rural schools in Southwest Georgia to understand the male teacher experiences within a rural context. It would be interesting to compare similar dynamics within an urban context.

The sample used for this study included only male CTAE teachers in Georgia at the secondary level. Teachers of non-traditional programs at the middle or post-secondary level, such as those at a technical college, were not involved. This study did not account for female teachers who teach females in non-traditional preparation programs. The narrow scope of this research limited the study's transferability to other institutions focused on career preparation in Georgia. These limitations may limit the ability to

generalize the conclusions beyond the case, setting, or group to other people, locations, and times (Maxwell, 2013).

After identifying two possible research locations, only four potential participants met the requirements of the study in the summer of 2021. I delayed the first round of interviews due to the COVID-19 health restrictions. I collected data from the fall of 2021 over four months. Participants elected to conduct interviews via video conferencing software, and one interview occurred when the participant's school was closed due to COVID-19 concerns. While not as desirable as in-person interviews, video conferencing allowed me to observe facial expressions and the participants' work environment. The lack of face-to-face interactions minimized my ability to immerse myself in the research environment. However, I conducted non-participant observations at each research site. In-person observations allowed for a better understanding of the participants' environment and helped frame the context for student interactions.

One of the main limitations of this study centered on participant responses. While some participants initially indicated they were unsure what to say or what I wanted them to talk about, they eventually opened up about their experiences. They were willing to share meaningful personal stories. While participants were engaging, there were times they were reluctant to speak freely during interviews, and I could sense they worried about what I thought about their responses. CTAE directors are often responsible for conducting teacher evaluations. Participants knew I was a CTAE director, which may have impacted their ability to see me as an impartial observer. I had to assure more than one participant it was not my job to determine what was right or wrong; I only wanted to listen to their experiences so I could meaningfully share their stories with others.

Participants' perspectives of observations and their reservations about being observed may have limited data collection. While participants welcomed me into their classrooms, they wanted to know the types of things I was looking for while I was there. Sharing my observation notes with teachers during the second interview allowed for member checking and provided an opportunity to expand on what was seen and heard.

A second significant limitation of this study centered on researcher bias. Merriam (2002) emphasized the importance of engaging in reflexivity to search for and identify any personal biases revealed during the research process. While I am not a male teacher of a non-traditional female program, I am a CTAE director who has worked with teachers of non-traditional programs. I may hold unconscious biases based on my professional experience working with teachers of non-traditional female programs. I utilized elements related to credibility, transferability, dependability, and confirmability to help reduce my personal bias and ensure the validity of my research (Imel et al., 2002).

I collected sufficient data using a three-interview series, an observation, and documents leading to data saturation (Merriam, 2002). I used these sources to triangulate the data (Merriam, 2002). I also allowed participants to review transcripts and discuss observation notes. Member checking also allowed me to identify personal biases that surfaced during data collection and analysis and correct any misunderstandings about interview or observation data (Maxwell, 2013). I also created memos throughout the process, allowing me to recognize potential issues, record concerns in memos, and reflect on any biases or vulnerabilities (Ary et al., 2019). Reviewing notes, memos, and other reflections created while researching allowed me to identify incorrect assumptions or

personal prejudices during the data collection, analysis, or write-up phases to minimize their effects (Ary et al., 2019).

Recommendations for Future Research

While analyzing data and developing themes, recommendations for future research emerged. One suggestion is to expand this study by including additional participants from schools in other areas of the state. Including participants from the north and central Georgia and urban populations would expand the transferability of the study's results. Many students leave high school and enter a post-secondary institution before entering the workforce. A study of technical college or college instructors of non-traditional female programs would also add to the literature base. While this study focused on non-traditional female CTAE programs, a study of the perspectives of female teachers of non-traditional male CTAE programs would provide additional insight into the barriers and strategies affecting students in gender non-traditional programs. It would broaden the literature by including additional teachers' stories.

Although there are student voices in much of the literature, I recommend interviewing female students of exemplary male professional careers and technical educators in gender non-traditional programs. Interviewing these students would provide feedback on the classroom practices and student-teacher relationships highlighted in this study.

Participants indicated a lack of guidance and counseling opportunities for non-traditional careers at the high school level. A study focused on secondary guidance counselors may reveal a better understanding of the impact of course selection and registration processes on gender non-traditional program enrollment and retention.

Participants also believed COVID-19 protocols negatively impacted some traditional CTAE recruitment efforts because students could no longer tour and see programs in person. Thus, the effectiveness of recruitment methods targeting non-traditional females is an area worthy of additional investigation. Participants also noted COVID-19 protocols negatively impacted instructional delivery methods because many teachers had to move to online learning during school closures, which is especially difficult for classes with skills production components. A longitudinal study of whether online teaching primarily impacted enrollment and retention of non-traditional female students may provide deeper insight into how different instructional strategies affect such programs.

Finally, while not in education, I recommend a study focused on employer perceptions of women working in non-traditional fields that include the voices of women currently working in non-traditional fields for future research. Much of the current literature focuses on career preparation programs at the secondary and post-secondary levels. Hence, such studies would provide a different perspective on the gender occupational gap plaguing the workforce.

Final Conclusions

The gender occupational gap is significant and persists as a dominant characteristic of the U.S. labor market (Hegewisch & Hartmann, 2014). Specifically, technical, trade, and industry fields lack female workers (Fluhr et al., 2017; Hegewisch & Baris, 2020). The occupational gender gap affects the workforce because available jobs are unfilled, and gender career segregation perpetuates the wage gap between men and women (Equitable Growth, 2017). Non-traditional career fields also lack diversity, negatively influencing productivity and the work environment (Sharma, 2019). The

gender occupational gap in the workforce mirrors enrollment in Georgia's secondary CTAE programs. Although there are many benefits for individuals wishing to pursue a career considered non-traditional for their gender, program enrollment and completion rates of female students in gender non-traditional high school CTAE programs in Georgia are consistently lower than those of their male counterparts (GDOE, n.d.-e). Thus, identifying and promoting strategies designed to reduce barriers to female non-traditional career program enrollment and retention at the secondary level may help counteract these issues at school and in the labor market.

This research explored the attitudes of the male professional career and technical educators to understand conditions supporting or inhibiting girls' participation in non-traditional career pathway programs at the secondary level. Phillips and Imhoff (1997) noted while many factors contribute to student career selection, teachers directly influence students interested in non-traditional career choices at the school level. Additionally, Mesler et al. (2021) asserted the way teachers interact with students impacts students' performance.

The conceptual framework for this study comprised three elements: my experiential knowledge, existing theories, and research. Many of the findings were consistent with my experiential knowledge, such as a lack of career guidance and counseling at the secondary level and the negative impact of gender stereotypes on initial program enrollment. However, my assumption was incorrect that teachers do not recruit students because they do not want to or do not think it is a priority. Most of the findings confirmed previous research studies cited in the literature review. This study is different from other studies because it focuses on the stories of CTAE teachers and how they

impacted female students' success in non-traditional career preparation programs. I framed this study around the intersection of constructivism and career development theories to formulate how student-teacher interactions affect non-traditional CTAE preparation programs. This study focused on the perspectives of teachers and how they integrate and support non-traditional female students in their programs. Therefore, I initially considered a behaviorist approach focused on how instructors transmit knowledge to their students. Constructivism, however, still appears to be the best fit because it focuses on how teachers provide relevant and authentic tasks to make learning meaningful (Doolittle & Camp, 1999). Constructivism expands beyond the simple transmission of knowledge and helps explain how participants in this study expected their students to be active learners. Career development theory focused on how students make career choices, specifically Gottfredson's (1996) circumscription and compromise. While many career development theories exist, Gottfredson's focuses on life stages and specifically includes the transition period from middle school to high school in which participants begin interacting with their female students. The interaction of these two theoretical perspectives was a good fit to frame how personal and school-related experiences influenced male teachers and female students in non-traditional CTAE programs.

A narrative inquiry methodological approach fits this study's purpose and research questions because it examines human lives through stories (Patton, 2015). Collecting the stories of exemplary male CTAE teachers, I deeply explored teacher attitudes and experiences, and data analysis focused on re-telling stories while establishing social meaning and significance (Clandinin & Connelly, 2000; Kim, 2016). My connections

with other CTAE directors in the region helped secure a research site and participants for this study. The CTAE directors I contacted facilitated access to the educational research setting by following up on my request with their respective superintendents. The directors also prepared participants by explaining their recommendations for the research study. Teachers received an email to gauge their interest in participating. While this was a relatively straightforward process, issues related to COVID-19 delayed the data collection.

Careful data analysis revealed four themes and one subtheme. The theme reinforcing equality explained how participants promoted equality in the classroom, ensuring every student had access to the same resources and instructional opportunities while setting equal performance expectations for all students. The subtheme of safe spaces explained how teachers designed the learning environment to appeal to all students and be inclusive of all students regardless of gender. The structures supporting the equity theme focused on the teachers' ability to produce the same positive outcomes regardless of the background, prior knowledge, or unique challenges female students bring to the learning environment. In this theme, participants focused on providing differentiated instruction, believing students can achieve, and promoting respect in the learning environment to minimize barriers in the gender non-traditional classroom.

The femininity accentuating soft skills theme focused on participants' belief that female students do not have to give up their femininity to succeed in a non-traditional career field. It explained how female students' soft skills help them stand out from their male peers and positively impact the learning environment. And the final theme, mentoring relationships while cultivating role models, explained how participants use the

power of positive relationships to become mentors to their female students. When teachers serve as mentors, their female students are more likely to experience success, which allows them to become counter stereotypical role models for future students. Participants then use these former students to recruit and support the next group of non-traditional students.

Williams (2016) argued various complicated conditions lead to gender segregation within CTE programs, and current literature explores these conditions. Engebretson (2015) explained students and teachers both bring their gendered knowledge and experiences into the classroom each day, and these experiences impact the learning environment. Issues affecting secondary non-traditional program enrollment and retention rates must be explored more thoroughly from several perspectives to close the gender occupational gap for women. This study specifically focused on the experiences of exemplary teachers producing positive change in two rural schools in Southwest Georgia. While the four participants in this study disclosed different educational and work experiences, they all focused on supporting female students in their programs. They used their professional knowledge and experience to guide them. They accepted female students for who they are, acknowledged and reflected on their personal gender biases, and created equitable learning environments where their female students could succeed.

Participants have taken strides to provide an equal and equitable environment for their female students. However, they acknowledged they could not meet all the needs of their female students alone. Participants sought assistance from various individuals to ensure the school supported their female students in a gender non-traditional CTAE program environment. First, participants utilized other female teachers to help their

female students deal with sensitive issues. Participants were ill-prepared to handle female students when dealing with personal problems like romantic relationships, pregnancies, or family issues. They relied on other female teachers to provide students a place to go to feel emotionally supported. Second, they sought help from their CTAE directors and school administrators to provide a learning environment that meets the needs of their female students. This problem may mean the director provides funding for specialized equipment or supports redesigning the classroom and laboratory space to better support supervision. It also means school administrators support participants' efforts to maintain classroom discipline and control to ensure the environment is free of harassment for their female students. Finally, participants sought help from their former students. Participants understood the pressures facing female students who may select a gender non-traditional career path and provided counterstereotypical role models by embedding former students in the program to share their experiences with current students. They also understood the importance of family connections and used relationships between brothers, sisters, and cousins to encourage female students to pursue non-traditional programs.

The femininity accentuating soft skills theme provides a springboard for ensuring female student success in non-traditional programs. It revealed that participants did not give in to gendered career stereotypes and instead focused on acceptance in a society that often negatively judges things not fitting within the norm. Participants did not view gender as a negative trait but recognized that gender diversity brings value to the secondary program, just like the workforce. Teachers who recognize female students bring value can focus on developing positive student-teacher relationships. As teachers get to know their female students by forming strong relationships, they can find ways to

support them in the classroom. When female students are supported, they experience success. This success builds their self-efficacy, allowing them to serve as role models for the female students who follow them into a non-traditional preparation program. It also reinforces to teachers that female students can be successful in their programs, supporting the value female students bring. Thus, the cycle of commitment and success between male teachers and female students begins again.

While previous literature focused on how teachers can support female students by providing a safe and equitable environment, this study revealed teachers struggle to maintain a balanced and safe environment for themselves. Participants worried about appearances of impropriety and potential allegations of sexual harassment. They stressed the importance of never being alone with female students and the need to maintain safe distances. Additionally, participants struggled to balance the gender-based respect they traditionally show women with how they allow female students to immerse themselves in tasks considered dirty or highly physical. While the participants strived to be gentlemen and serve as positive role models for their male students, they also had to consider how their actions impacted the elements of equality and equity they worked to promote.

For this reason, school leaders must consider what they can do to help create a stress-free environment for their male teachers working in non-traditional female CTAE programs so teaching and learning can be the priority. Opening communication channels to listen to teacher concerns and suggestions for improving the learning environment is essential. Discussions may include the development of processes for identifying potential issues and possible procedures for investigating complaints. Classroom improvements can include redesigning laboratories to minimize small spaces and opening sightlines by

adding windows. School leaders must recognize male teachers of non-traditional female students face unique challenges and should take time to examine individual programs and determine how best to support teachers as they work to support their students.

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APPENDIX A:

Interview Guide and Questions

Interview 1: Focused Life History

Purpose: The purpose of this interview is to learn more about the experiences that led you to becoming a teacher.

General Information

- Name, age, race, gender?
- Describe your childhood.
    - Where did you grow up?
    - What was your family like?
    - Where did you go to school?

Professional Experience

- How many years of experience do you have as a teacher? What subjects do you teach?
- What influenced your decision to become a teacher?
- Teachers in your field typically become certified based on prior work experience in a career field. What professional experience did you have prior to becoming a teacher?
    - Describe any experiences you had with non-traditional co-workers performing the same tasks as you on the job.
- Describe the process for obtaining your teacher certification.
- Describe your first day as a teacher.
- Describe the best part of being a teacher.
- Describe the biggest challenge you face as a teacher.
- What do you think are the goals of CTAE at the high school level?

    - How do you make sure you are teaching toward those goals?
- How many students are currently enrolled in your pathway courses? How many of those are non-traditional female students?
    - Describe the enrollment process. How do students select your class?
    - Describe the differences, if there are any, between recruiting male and female students for your class.

Interview 2: The Details of Experience

Purpose: The purpose of this interview is to learn more about your experiences with the non-traditional students in your classroom.

- Think back and walk me through your first experience with a female non-traditional female student in your classroom?
- Describe your most memorable non-traditional student.
    - What makes her stand out?
- Describe how male and female students interact with each other in the classroom.
    - Describe a situation in which there was a conflict in the classroom involving a non-traditional student. How was it resolved?
- Describe a situation you would consider a success for a non-traditional student.
    - How did that impact the rest of the class?
- Describe the involvement of non-traditional female students from your career pathway program in your co-curricular student organization.
    - With which CTSO do your students affiliate?
- Describe any particular teaching or classroom management strategies you have that work well with non-traditional students.

- Describe the barriers you think non-traditional female students enrolling in your career pathway courses face.
- What role do you play in recruiting and retaining non-traditional students into your career pathway program?
    - How closely do you work with guidance counselors? Describe how they help students select their elective courses.
- What role do you play in helping non-traditional students find post-secondary training options or work placements in your field?
    - Describe any barriers local employers have identified when looking to recruit or hire gender non-traditional students.
- Describe any professional development you have received that has helped you serve non-traditional students.
    - Local level? State level?
    - What type of professional learning or support do you think would be beneficial for teachers who want to improve their instruction of non-traditional students?

Interview 3: Reflection on the Meaning

Purpose: The purpose of this interview is to reflect on your experiences to help determine what these experiences mean as they relate to your interactions with non-traditional students

- If I spoke to one of your non-traditional students, how would she say you worked to makes sure non-traditional students feel welcome and represented in your classroom?

- After reflecting on your experiences with non-traditional students, how do you see yourself moving forward as a teacher of these students?
- How likely is it that you will see an increase in your non-traditional enrollment and completion numbers over the next five years?
    - Why likely or not likely?
- What advice do you have for other teachers who work with non-traditional students in the classroom?
- What advice do you have for female students who want to work in a non-traditional career field?

APPENDIX B:

Institutional Review Board Approval

Institutional Review Board (IRB)
For the Protection of Human Research Participants

PROTOCOL EXEMPTION REPORT

Protocol Number: 04201-2021 **Responsible Researcher(s):** Beth Adams

Supervising Faculty: Dr. Rudo Tsemunhu

Project Title: *A Narrative Inquiry of Male Teachers Working with Female Students in Gender Non-Traditional Career, Technical, and Agricultural Education (CTAE) Programs.*

INSTITUTIONAL REVIEW BOARD DETERMINATION:

This research protocol is **exempt** from Institutional Review Board (IRB) oversight under 45 CFR 46.101(b) of the federal regulations category **2.** If the nature of the research project changes such that exemption criteria may no longer apply, please consult with the IRB Administrator (irb@valdosta.edu) before continuing your research.

ADDITIONAL COMMENTS:

- *Your research study is approved to begin at* [redacted]
- *Upon completion of the research study collected data must be securely maintained (locked file cabinet, password protected computer, etc.) and accessible only by the researcher for a minimum of 3 years. At the end of the required time, collected data must be permanently destroyed. If applicable, Pseudonym lists are to be kept in a separate secure file from corresponding name lists., email addresses, etc.*
- *Exempt protocol guidelines* ***permit*** *the recording of interviews, provided the recording is made for the sole purpose of creating an accurate transcript. Upon creation of the transcript, the recorded interview must be deleted immediately from all devices. Exempt protocol guidelines* ***prohibit*** *the collection, storage, or sharing of recordings.*
- *The research consent statement must be read aloud to each participant at the start of each interview session. The reading of the statement, confirmation of understanding, and willingness to participate must be included in the recording and documented in the transcript.*

☒ ***If this box is checked, please submit any documents you revise to the IRB Administrator at irb@valdosta.edu to ensure an updated record of your exemption.***

Elizabeth Ann Olphie ***07.29.2021***
Elizabeth Ann Olphie, IRB Administrator

Thank you for submitting an IRB application.
Please direct questions to irb@valdosta.edu or 229-253-2947.

Revised: 06.02.16

APPENDIX C:

Participant Consent Agreement

VALDOSTA STATE UNIVERSITY
Consent to Participate in Research

You are being asked to participate in a research project entitled "***A Narrative Inquiry of Male Teachers Working with Female Students in Gender Non-Traditional Career, Technical, and Agricultural Education (CTAE) Programs***." This research project is being conducted by Beth Adams, a student in the department of Curriculum Leadership, and Technology at Valdosta State University. The purpose of this research is to explore the attitudes of male professional career and technical educators to inform an understanding of the conditions supporting or inhibiting the participation of girl pursuing non-traditional career pathway programs at the secondary level.

You will receive no direct benefits from participating in this research study. However, your responses may help us learn more about educator attitudes toward gender non-traditional CTAE programs and exemplary practices that support female students in non-traditional programs. Knowledge gained may contribute to addressing issues related to meeting the needs of diverse students in CTAE programs, to the preparation of future CTAE teachers, and to the professional development of current CTAE teachers.

There are no foreseeable risks involved in participating in this study other than those encountered in day-to-day life. Participation should take approximately 90 minutes for each interview in a three-interview series and 60 minutes for one classroom observation. The interview will be audio recorded in order to accurately capture your concerns, opinions, and ideas. Once the interview recording has been transcribed, the recording will be deleted from recording devices. Your name and workplace will be replaced with a pseudonym in publications or presentations. Your participation is voluntary. You may choose not to participate, to stop responding at any time, or to skip any questions that you do not want to answer. You must be at least 18 years of age to participate in this study. Your participation in the interview serves as your voluntary agreement to participate in this research project and your certification that you are 18 years of age or older.

Questions regarding the purpose or procedures of the research should be directed to Beth Adams at betadams@valdosta.edu. This study has been exempted from Institutional Review Board (IRB) review in accordance with Federal regulations. The IRB, a university committee established by Federal law, is responsible for protecting the rights and welfare of research participants. If you have concerns or questions about your rights as a research participant, you may contact the IRB Administrator at 229-253-2947 or irb@valdosta.edu.

APPENDIX D:

Climate Audit Checklist

Location:
Date:
Time:
Research Question:

Climate Audit Checklist

☐ **Y** ☐ **N**
Do posters, pictures/paintings on the walls, textbooks, or other classroom materials show students/adults of both genders?

☐ **Y** ☐ **N**
Do classroom wall paintings, pictures, posters give off a predominant "masculine" feel (e.g. mancave) or "feminine" feel (e.g. boutique)?

☐ **Y** ☐ **N**
Is there a locker room/changing space/restroom in or near the classroom that might be uncomfortable for the non-traditional gender to use?
Is it private? Does the door lock?

☐ **Y** ☐ **N**
If students have uniforms, required clothing, or gear, could the garments themselves or the colors be off-putting to the non-traditional gender?

☐ **Y** ☐ **N**
Are there areas in the classroom space where female students may feel unsafe if the class has a majority of males?

☐ **Y** ☐ **N**
Does the instructor refer to "my girls" or "us guys" or other terminology that caters more to the predominant gender?

Modified from: Indiana Department of Education. (2016, August). *Changing the equation: An analysis of Indiana secondary CTE non-traditional participation and completion*. IN.gov. https://www.in.gov/gwc/cte/files/17-changing-equation-non-traditional-report-final.pdf