MICROAGGRESSIONS IN MALE-DOMINATED CAREER AND TECHNICAL EDUCATION CLASSROOMS

by

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LIST OF ABBREVIATIONS

Career and Technical Education ..... CTE
Science, Technology, Engineering and Mathematics ..... STEM
Information Technology Network ..... ITN
Horticulture Construction ..... HRT
Engineering ..... EGR

ABSTRACT

MICROAGGRESSIONS IN MALE-DOMINATED CAREER AND TECHNICAL EDUCATION CLASSROOMS

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The following paper looks at a consistent issue in American society, the significant gender disparity in career and technical education classrooms. The researcher examined microaggressions exist and their effect on student's retention within the career and technical education classrooms at a large community college in the Mid-Atlantic region. The paper sought out three classes that exist as a non-traditional program for females, which included one engineering class, one construction management class, and one computer science class. The researcher observed these courses and then conducted interviews with five females from the courses. As a result, the research found that females experience non-verbal microaggressions, isolation, and differing teaching methods. The research helped expand on the understanding of gender microaggressions and how females experience them in the classroom. Based on the study, instructors need better information and training on how to identify and mediate these behaviors.

CHAPTER ONE

In the United States, Career and Technical Education (CTE) spans across high school, community college, and 4-year colleges and universities. CTE prepares individuals across a variety of backgrounds for opportunities to get varying levels of education such as industry-recognized credentials, postsecondary certificates and two or four year degrees. CTE has sixteen different categories of programs, including: hospitality and tourism, information technology, marketing, sales and service, business, management, and administration, manufacturing, government and public administration, health science, science, technology, engineering and mathematics, law, public safety and security, agriculture, food and natural resources, human services, transportation, distribution and logistics, finance, architecture and construction, education and training, and arts, A/V technology, and communications (ACTEa, 2013). Starting from middle school until post-secondary education CTE creates both college ready students and career ready students by giving students core academic skills, employable skills, and job-specific skills**.** These skills help provide a highly desirable student for potential employers. Both secondary and post-secondary institutions with CTE programs receive support from the Carl D. Perkins Career and Technical Education Act (ACTEa, 2013). The act provides millions of dollars, in support, to states to fund the CTE programs on a yearly basis (ACTEa, 2013).

At the postsecondary level, CTE provides education that directly prepares students for specific occupations and careers or lead to further education at other institutions (ACTEa, 2013). CTE trains students to become certified in fields that allow students to receive the credentials to enter into a specific field of work. CTE programs also prepare students to transition for further education at four-year universities particularly in the science, technology, engineering, and mathematics (STEM) fields (ACTEa, 2013). Among American postsecondary education institutions, in 2010-2011, CTE programs in the U.S enrolled over four million students and at the secondary school level, educators enrolled 94 percent of the student body in at least one CTE course (ACTEa, 2013). At the post-secondary level, CTE encompasses 16 types of programs (ACTEa, 2013). These include information technology, automotive, health science, and a variety of other areas (see Appendix G).

. Virginia, Maryland, and Pennsylvania play a vital role nationally, in expanding and enhancing CTE programs. In the state of Virginia, 117,000 postsecondary, and 262,000 secondary students, enrolled into a CTE program (VDOE, 2012). In Maryland, half of the high school student's grade 10-12 enrolled in CTE and 57,000 at community colleges (ACTEb, 2013). In Pennsylvania, 60,451 students in secondary and 81,062 in postsecondary studies enrolled into a CTE program. Virginia received over 23 million dollars, Pennsylvania received over 40 million dollars, and Maryland received over 14 million dollars from the Perkins Basic State Grant in F.Y 2013 (ACTEb, 2013). Programs such as Project Lead the Way, Governors STEM academies, Virginia College and Career Readiness Initiative, and Jobs for Virginia Graduates continue to support CTE

programs across the state (ACTEb, 2013). These programs provide current and future financial support that has and will help keep CTE programs producing career and university ready graduates. Continued support of the programs has to parallel with creating a fair and equitable CTE system for all citizens in Virginia.

Currently, Virginia, Maryland, and Pennsylvania community colleges and the other state community colleges have an imbalance in the gender distribution among the CTE programs (Lester, 2010). According to the National Women's Law Center (2005), over the past 30 years the gender divide among CTE programs has not decreased despite Title IX, the Perkins Career and Technical Education Act, and other legislation. The types of discipline that females pursue have a long-term impact on earning potential. A recent report by the American Association for University Women (Rose, 2013) argued that while females who earn certificates and associate degrees have higher average earnings than females with less education, those scientific, technical, and mathematics fields with few females tend to have the higher lifetime earning potential. Additionally, a longitudinal study from 1990-2005 found a negative correlation of females attending CTE courses and earnings rate (Levesque et al., 2008). The study revealed that female students do not enter into programs that lead to jobs that compensate on an equivalent level with males. The disadvantage leaves females with limited financial viability, which affects their future.

A form of discrimination called microaggressions has the capability of perpetuating the divide between males and females. Over the past decade, several researchers have increased their attention towards a different form of discrimination –

microaggressions, which are covert and subtle behaviors and events involving racism, sexism, discrimination, and other hassles targeted at an individual of a specific group (Sue, et al., 2007a). These microaggressive behaviors occur on a frequent basis and these behaviors occur either unbeknownst of both the inflictor and receiver. The inflictor of a purposeful and overt discriminatory behavior that occurs within the course is an act that reaches beyond the scope of this study. The power of these behaviors lies in the inability for most individuals to identify, articulate or address the microaggressions. Microaggressions occur anywhere and anytime, including the classroom (Boysen, 2012a). Researchers have noted forms of racial microaggressions in four-year institution classrooms and residence halls (Boysen, 2012a; Boysen, 2012b; Harwood, Huntt, Mendenhall, Lewis, 2012).

The current study attempts to address the following questions: How do gender microaggressions appear? In what ways do female students interpret them in male-dominated CTE classrooms at a community college? How do these microaggressions deter female students from continuing for their studies in a CTE program? Both questions look to further the understanding and existence of microaggressions as a deterrent for woman in CTE programs. Ultimately, the study hopes to understand the presences of microaggressions and how students react and perceive the microaggressions in the classroom.

To answer the research questions, the study applies both classroom observation data and interviews with female students to understand the microaggressvie behavior within male-dominated classrooms in CTE programs. The study has several goals

pertaining to understanding microaggressions, CTE, and male-dominated programs. Overall, the researcher desires to understand the types of microaggressions in male-dominated CTE programs at community colleges and how female students interpret the microaggressions. Another goal of the study is to develop a strong qualitative analysis technique to observe and identify microaggressions in a classroom setting using observation protocols that help to clearly identify the occurrence of microaggressions in a classroom. The observation protocol takes into consideration all known types of microaggressions and the impact each have on the individual. The interview protocol hopes to create a detailed analysis of the experience of the female student in male dominated CTE courses. Each method attempts to bring together multiple perspectives on the issue in order to create a comprehensive picture of the microaggressive activities.

Significance of the study

Career and Technical Education (CTE) represents an important area of education for the future development of the American economy. Current government leaders have taken notice of CTE programs because the programs encompass necessary components to the continuing economic prosperity in the U.S. States such as Washington and Tennessee have seen a nine and two dollar return on every dollar invested into CTE programs (ACTEc, 2013). Additionally, CTE trains individuals in some of the fastest growing fields such as health care, which contain eight of the twenty fastest growing occupations (ACTEc, 2013). Additionally, CTE provides training in the skilled trades, which comprise of 898,000 open jobs in the trade, transportation, utilities, and manufacturing

areas (ACTEc, 2013). The CTE programs provide a financial upward mobility to individuals in these growing trade areas.

Politicians and leaders, including President Obama, see the value in investing towards CTE fields. In his 2012 state of the union address, President Obama emphasized training two million Americans at community colleges to enter the workforce (White House, 2012a). Obama and advisors has proposed to connect community colleges and businesses to create programs that generate career ready students (White House, 2012a.). Additionally, as a part of the Trade Adjustment Assistance Community College and Career Training grant program, the program awards approximately $500 million dollars to create and expand innovative partnerships between community colleges, businesses, and other industries to increase job training and skill-upgrade programs (White House, 2012b). The Bill and Melinda Gates Foundation and Lumina Foundation proposed to support the community colleges because they provide the most support to low-income students (Bailey, 2012). Bailey (2012) estimated that community colleges needed to increase enrollment by five to ten percent to reach the goals set out by the Obama Administration as well as similar goals set by the Bill and Melinda Gates and Lumina Foundations. Increasing the attention towards the success of female students at CTE programs at community colleges leads to accomplishing these goals. Moreover, high-tech high-skill jobs have replaced many low-wage, low-skill jobs and these subsequently require strong math, science, and language skills. Responsive, relevant, and rigorous CTE programs lead to a more educated, productive, and highly skilled workforce (Grubb,

1996). Because community colleges provide the most comprehensive CTE programs in nearly every state, these have an impact on the future economy.

There exists several reasons for increasing the number of females in non-traditional CTE programs including providing a new perspective and increased innovation in traditionally male fields, improving their income, and providing more marketable skill sets. Females who enroll in these programs may gain a new perspective on different topics that leads them to fields they previously had not considered. Additionally, the increased enrollment of females in these particular fields may provide new and varied perspectives that have not previously garnered any consideration.

Females who enter into non-traditional fields of CTE are more likely to receive a high compensation rate according to the data provide in Appendix A. Females consist of 63 percent of the primary or co-primary breadwinners in families with children (Boushy, O'Leary and Glynn, 2013). The increase in compensation provides women the opportunity to support families and allows them to take part in non-traditional fields. Females enrolled in programs that provide training in areas such as information technology or computer science allow for a skill set that is applicable to a larger variety of industries. Additionally, these skill sets particularly in computer and technology areas have become more desirable in the past decade and represent a large number of industries with future job growth (Moore, Jez, Chisholm, and Shulock 2012). The diversification in skill sets allows for women to apply and understand other fields and creates an increase in transferable skills. The importance of encouraging women into non-traditional fields

is important now in order to secure a better financial future for women as well a better economic situation for each community.

CHAPTER TWO

The following literature review outlines the two main areas of concern for the research, including Career and Technical Education and Microaggressions. First, the paper reviews female's growing role in higher education and their potential future growth in career and technical education (CTE) at community colleges. Second, the literature review covers the current barriers discussed in the area of STEM, a subset of CTE, and other male-dominated CTE programs. Finally, the literature on microaggressions displays a potential barrier to the lack of female participation in CTE classrooms at community colleges.

Females in Higher Education and Community Colleges

Presently, females enroll in higher education in larger numbers than males by a significant portion. Females had previously only amounted to around 3 million students in higher education while male enrollments exceeded 4 million, pre-1970's (Levesque, et. al. 2008). The 1970's became the time when female enrollment boomed, increasing 66 percent, while male enrollment encountered moderate growth, at 13 percent (Levesque, et. al. 2008). Female enrollment has consistently stayed above males nationally. Presently, females comprise 57 percent of the higher education enrollment in the United States (Marklein, 2010). Despite the gain in overall enrollment in higher education, females remain markedly absent from non-traditional programs. Non-traditional

occupations for females, defined by the United States Department of Labor (USDOL) (2008), have less than a 25 percent female employment. In disciplines such as engineering, at the associates level, female students national lag significantly behind in enrollment numbers, with males comprising about 33520 students and females at 4826 students (Levesque, et. al., 2008).

Nationally there is a lack of female enrollment in CTE and particularly in non-traditional programs. In Maryland, according to The National Association of State Directors of Career and Technical Education Consortium (2012) the state did not pass the non-traditional participation or completion indicator in 2011-2012, and Virginia did not pass the completion indicator while Pennsylvania passed both. To look more in-depth at the issue, the researcher profiles Virginia's Community Colleges CTE program. According to SCHEV data (2014), in the Virginia Community College System (VCCS), 26 CTE programs have less than 25 percent female population between fiscal years (F.Y) 2012-2014. The non-traditional female programs in Virginia include, among others, civil engineering, computer science, construction trades, and automobile technician and technology (SCHEV, 2014). Data from VDOE illustrates that the non-traditional female positions median annual earnings range from $34,000 for a corrections officer to $106,000 for a computer science engineer (see Appendix A). A review of appendix A reveals that STEM, manufacturing, and transportation clusters of CTE continue to enroll a higher percent of males (see Appendix A). The more traditional female programs fall under the health sciences, education, and human services (SCHEV, 2014). VDOE (2012) data informs the public that in contrast to the male range, the female dominant programs

earn between $24,000 for a psychiatric technician to $81,000 for a dental hygienists. A simple descriptive analysis of the data reveals that the median range for earnings for males, $70,000 is greater than females at $52,000. As the data exposes, the lack of female enrollment and success in traditionally male CTE programs has long-term implications for female's earnings in comparison to males.

Barriers to females in CTE/ Factors influencing career choice

Females have encountered a wide variety of barriers to their success at all levels in the education system. Specifically the next sections focuses on the different barriers that researchers currently understand as impediments to female success in STEM and CTE areas. The section focuses on female barriers as a result from secondary school preparation, teacher and faculty interactions, and culture and pedagogy in the classroom.

Middle school and high school preparation. Various researchers have suggested that the low enrollment numbers for females derive from their negative experience in science classes in high school and/or middle school (Kinzie, 2007; Potvin, Hazari, Tai & Sadler, 2009; Seymour & Hewitt, 1997). Since STEM and CTE represent the most promising financial future for individuals at community colleges, community colleges have to begin encouraging and providing support for females in non-traditional fields to counteract the negative experiences from middle or high school (Breiner, Johnson, Harkness, & Koehler, 2012; Hirschy, Bremer & Castellano, 2011).

Females enrolling in CTE fields encounter several barriers starting at the high school and middle school level. As soon as 8th grade, Kinzie (2007) noted that secondary schools begin to shape the potential pathway for females entering into a STEM, a subset

of CTE, degree. Starting in middle school, math achievement becomes a significant predictor for individuals entering a STEM field in the future (Kinzie, 2007). The lower the math level in eighth grade, the less math classes females take in high school and therefore, reduce their preparation and likelihood for success in STEM (Kinzie, 2007). In a large research project, Seymour and Hewitt (1997) noticed that inadequate high school preparation in STEM related areas influenced the persistence of a student in the STEM majors. In the same study, females had higher concerns than males about their ability to have success in STEM (Seymour & Hewitt, 1997). Females' lack of confidence in STEM has an effect on their persistence in STEM or related areas. In addition to the lack of confidence, females have received insufficient training in computer science as Margolis, Fisher, and Miller (2000) found out in a study at Carnegie Mellon. Forty percent of males passed a computer science Advanced Placement test while zero females came into the program with the same credential and henceforth leaving the females behind before their college coursework even started (Margolis, Fisher, & Miller, 2000). Research reveals the significant effect that middle and high school preparation has on female students but females interaction with faculty members at all levels of education have an effect on female enrollment in CTE.

Interaction with teachers and faculty. The interactions female students have with teachers and faculty impact interest in non-traditional programs. Female faculty underrepresentation in non-traditional programs illustrates to students that the discipline attracts limited female candidates (Blickenstaff, 2005). Research demonstrates that generating female role models in non-traditional fields results in benefits for females by

providing a connection to the field (Kim, Fann, & Misa-Escalante, 2009). Despite the benefits of female faculty on participation, any faculty member poses the potential to create an unwelcoming environment for female students and thus deterring their desire to continue in the discipline (Hall & Sandler, 1982). Females in a recent study noted that, in male dominated technology classrooms, faculty treat male and female students differently (Wasburn & Miller, 2004-2005). Wasburn and Miller (2004-2005) found 20 percent of the female students do not feel comfortable asking questions and one-third of the female students lack confidence in their technology skills. An unsupportive classroom climate has negative implications for female retention in non-traditional female programs.

The classroom structure impacts female retention at different levels of education. Seymour and Hewitt found that females do not find competitive environments conducive to a favorable course (Seymour & Hewitt, 1997). CTE and STEM programs typically grade on a curve and lack collaborative work, which reduces the chance of retention for women studying in these disciplines (Seymour & Hewitt, 1997). The discouragement of collaboration in STEM classes and the fiercely competitive environments leave women prone to isolation in these classrooms (Strenta & et al., 1994). A study on females in nontraditional fields, found that isolation correlates to a reduction in female retention for females in the non-traditional STEM programs (Strenta & et al., 1994). Instead, females performed better when given real-world applications of the material and become actively involved (such as active learning teaching) in the learning process, which ultimately helps to encourage a female's decision to stay in STEM (Margolis, Fisher, and Miller, 2000).

Culture and pedagogy. The lack of female student success in traditionally male-dominated CTE courses have not received attention in the literature and therefore, not thoroughly understood. Female students in CTE courses at community colleges experience highly masculine sub-cultures that may result in discriminatory experiences (Lester, 2008, 2010). Lester (2008) describes the role gender plays in how students perceive their instructor and the types of interactions that students tend to engage in with those instructors. Other studies have stated that females learn to acclimate to the masculine-subculture in order to feel a sense of belonging (Baxter, 2010). The discriminatory experiences of the females may reduce the likelihood of participation in CTE courses (Lester, 2008, 2010). Research of high school vocational programs identifies the role of teacher bias, curriculum, self-esteem, and gender socialization as factors that lead to females opting out of CTE programs (Carnevale, Smith, & Melton, 2011; Trusty, 2002). Researchers find that stereotypes and discrimination have led to disparities in STEM jobs for females beginning in middle school (Carnevale, Smith, & Melton, 2011). Trusty (2002) noted that girls in middle school experience differential teacher interaction with less attention from teachers influencing whether girls as early as the middle school pursue STEM studies. The research illustrated that teachers influence career paths for females and teachers often suggest that girls enter into traditional feminized fields (Trusty, 2002).

Female students have experienced many different forms of discrimination during their education experience, but microaggressions represent a different form of discrimination that has received less attention from researchers. The experiences of

females in CTE classrooms such as receiving differential treatment from faculty relates to a microaggressive behavior. Other experiences such as not interacting or seeing any other female individuals in the field represent forms of microaggressions towards female students. The pathways for females to non-traditional CTE fields may become affected by microaggressive behaviors.

Microaggressions

Research demonstrates that microaggressions have replaced blatant discrimination. The behavior generates a new issue for administrators, students, and faculty. Pierce, Carew, Pierce-Gonzalez, & Wills (1977) first coined the term in 1977 following a study of T.V. commercials where they found the presences of racial and gender microaggressions. Not until more recently has work on microaggressions took on a greater role in the literature. Derald Wing Sue and Kevin L. Nadal have contributed the most significant amount of information and research on all types of microaggressions in the past decade. Sue (2007, p. 271) defined microaggressions as "brief and commonplace daily verbal, behavioral, or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative racial slights." The definition has expanded to include gender, sexual orientation, religious and other insults that target a person or group (Sue, 2010). A microaggressive behavior has two elements: one, the events take on a more concealed form and do not present themselves in an obvious way; two, the enactor and the recipient of the behavior may not recognize the event (Nadal, 2013).

In the current study, the researcher will examine gender microaggressions, which according to Nadal (2013) exist as a form of microaggression targeted towards individuals of a particular gender. For the purpose of this research study, the researcher did not seek out specific indicators or information related to transgender individuals and other individuals of a particular sexual orientation. The three methods of introducing microaggressions include verbal, non-verbal, and environmental (Sue, 2010). An individual who talks directly to or around another individual for whom the microaggressive behavior gets directed constitutes the behavior as verbal microaggressions (Sue, 2010). For a non-verbal microaggression, an individual may express through body language or physical behaviors a microaggression towards a particular group or individual. An environmental microaggression relates to the surrounding area, which could create an unfavorable or negative space for a particular group or individual to participate within (Sue, 2010). For example, having photos and images of females being subjected to male dominance is considered an environmental gender microaggression because the photos do not portray a safe place for females to work or function within.

The three forms of microaggressions that exist include microinvalidation, microinsult, and microassault (Sue et al., 2007a). Each type of microaggression represents a progressively more severe and intentional form of discrimination; according to Sue et al. (2007b) the microaggressions from least to most severe include: microinvalidations, microinsults, and microassaults. Microinvalidations cue individuals to feel negated or neglected from their experiential reality (Sue et al., 2007a; see

Appendix B). For example, a male may disregard a female comment, in a sarcastic way, as innocuous or irrelevant. Microinvalidations encompass unintentional actions that the individual performing the act typically does not understand what has occurred or purposefully incurred any injury (Offermann, Basford, Graebner, DeGraaf, & Jaffer, 2013). The recipient of a microinvalidation may interpret the action as offensive and this ambiguity leads to many undocumented cases (Offermann, Basford, Graebner, DeGraaf, & Jaffer, 2013).

A microinsult consists of environmental and interpersonal interactions that express the stereotypes of another group and typically expressed unconsciously (Sue et al., 2007a; see Appendix B). A microinsult parallels incivility and generates ambiguity on whether the action had intent to harm (Offermann, Basford, Graebner, DeGraaf, & Jaffer, 2013).

Finally, microassaults constitute conscious degrading verbal or non-verbal actions that hurt an individual of another group (Sue et al., 2007a; see Appendix B). The microassault resembles the more overt and blatant discrimination that existed more prevalently in the past but expressed less obviously (Offermann, Basford, Graebner, DeGraaf, & Jaffer, 2013). Despite the significant amount of research on microaggressions, the actions of the enactors go unnoticed by the recipients. Many of the discriminatory actions go unobserved or not confronted because of the ambiguity in their interpretations. Ultimately, the difficulty in identifying and addressing the microaggression relates to the interpretation and reaction of both the receiver and giver of the microaggressive behavior (Nadal, 2013).

Microaggression research focuses mostly on racial events or situations, but recently researchers introduced more on gender and sexuality microaggressions. The expansion of the research provides a greater understanding of gender microaggresions in some contexts. In Nadal's (2013) book, the author provides a set of themes around gender microaggressions, which include sexual objectification, assumption of inferiority, assumption of traditional gender roles, use of sexist language, denial of individual sexism, invisibility, denial of the reality of sexism, and environmental gender microaggressions. Each theme of gender microaggression, presented by Nadal, falls under a particular category of microaggressions (microinsult, microinvalidation, microassault) and each provide a framework for the current study on gender microaggression (see Appendix H).

Microaggressions may have a significant impact on an individual throughout their experience in an area where the action continually arises. In a recent study, Nadal (2013) sought to understand the effects gender microaggressions has on female's behavioral, emotional, and cognitive reactions. Behaviorally, females tend to have a range of reactions from confrontational to passive, which includes ignoring the microaggressive behavior (Nadal, 2013). The study states that female participants avoid environments where microaggressions have the chance to occur and females became self-protective because they did not feel safe (Nadal, 2013). Additionally, the participants list a broad range of emotions as a result of the microaggressions, including, anger, humiliation, and guilt (Nadal, 2013). The significant effects of gender microaggressions on females in the research create a cause for concern on their effects within CTE classrooms. An

understanding of the researching relating to discrimination in the classroom further justifies the necessity of the current study.

Classroom Microaggressions

Research on microaggressions and similar forms of discrimination have focused on racial and ethnic groups in a variety of higher education settings (for example, Ong, Burrow, Fuller-Rowell, Ja & Wing Sue, 2013; Pittman, 2012; Nadal, 2011; Harwood, Huntt, Mendenhall & Lewis, 2012). Classroom racial and cultural microaggression research appears in a limited number of studies but gender microagression in the classroom literature does not exist. Most researchers instead tend to integrate the gender microagression concept post-study if at all. A few studies on racial microaggressions notice that the classroom environment has the potential to generate an unfavorable effect on student's attitudes toward the subject (Solórzano, 1998; Boysen, 2012a; Boysen, 2012b). The existence of racial microaggressions in the classroom leads the researcher to believe that gender microaggressions may have a similar effect in the same environment.

The limited research on gender microaggressions results in a major gap of research on microaggressive behavior at higher education institutes and particularly the classroom environment at community colleges. Much of the research focuses on gender discrimination within four-year universities of STEM programs. Studies provide evidence that female students tend to lack resources on how to deal with discrimination or harassment in the classroom (Settles, & et al., 2006; Xu, 2008). As a result, females become more prone to leave the discipline (Settles, & et al., 2006; Xu, 2008). Other studies that relate to gender microaggression or discrimination focus on male-dominated

classes and their effects on female students retention and success in the program. One of those studies looks at females in science and technology fields at a four-year institution and finds that many females become discouraged and lacked self-confidence as they progressed through the program (Brainard & Carlin, 1998).

A newer study looks at community college students in career and technical education programs and found females experience gender bias and a lack of support from the college (Lester, 2010). Lester's (2010) study focused on general issues females encounter with CTE and did not mention microaggressions or the implications they may have on females in these courses. A study that analyzes the frequency of microaggressive behavior may provide an increase in societies understanding of females in CTE programs. Knowing the way in which gender microaggressions exist within a community college classroom, specifically a male-dominated CTE classroom, poses an unexplored area for the microaggression topic.

Current Study

In the current study, I focus on gender microaggressive behaviors in CTE in community colleges. This study will use in-class observations in a predominately male dominated CTE course to collect information on gender microaggressions with attention to the impact on student retention. The researcher will conduct an interview during the semester to gain insight on the student's experiences in CTE classes. The further understanding of microaggressive behaviors in community college classrooms in male-dominated CTE may help reveal the presence and impact of these discriminatory experiences on female student success.

CHAPTER THREE

The current project used an ethnographic case study of three CTE classrooms at a Mid-Atlantic community college (MACC) to study how gender microaggressions exist in the classroom and how these microaggressions affected female participation in the future. A case study was "…chosen precisely because researchers are interested in insight, discovery, and interpretation rather than hypothesis testing…" (Merriam, 1988 p. 10). An ethnographic case study provided in-depth descriptions of the culture studied and allowed members to tell their individual stories (Van Maanen, 1988). The research design assisted in uncovering the various ways that individual students experienced gender microaggressions in the classroom and how those experiences may effect future decisions about which degree to pursue. The following sections provide a complete outline of the selection of participants, the data collection process, and the data analysis process.

Participants and Classes

The process of getting approval started with completing forms for Institutional Review Board (IRB) at George Mason University. IRB required a complete description of the methods for the study and the precautions taken to protect the participants in the study. The IRB reviewed the application three different times after revisions and approved the study after less than a month. Additionally, the study needed to obtain

approval from the community college to perform observations in the classroom. The process began by attempting to contact the vice president of institutional research, planning, and assessment at the community college. Getting a response by the vice president to approve the study took around five months and required that each instructor and corresponding dean remain in contact about the study. Following the approval from both entities, the researcher began contacting instructors that taught classes in a CTE field. Faculty received an email detailing the study and asked whether they wished to participate. If the instructor taught a class with at least one female and fell under the CTE designation, then the researcher pursued the class. After the researcher emailed several instructors, an instructor from engineering (EGR) agreed to allow the researcher to observe the classroom. The horticulture construction management (HRT) class agreed after the EGR course. The course did fall under the designation of being within a CTE program and contained female students; however, females, based on the definition of non-traditional provided earlier, do not necessarily dominate the program. Since construction oriented classes contained mainly male students, the observations of the class proceeded. The third instructor for the ITN course emailed me last, after the researcher made several attempts to get in touch with him, and allowed the researcher to perform observations in his classroom.

The researcher selected an electric circuits engineering class (EGR) at the Annandale campus first. This class had three females, and seven male students and a high percentage of racial or ethnic diversity. A middle-eastern female instructor taught the class. The class met on a weekly basis for sixteen weeks and attempted to inform

students about the physics behind how circuits worked and the equations that described the nature of circuits. The researcher selected an information technology networking class for CISCO as the second course. The course included a white male instructor who taught one female and four males in the class and the course contained a few ethnically diverse students. The class met for the second eight weeks of the semester and twice a week on Monday and Wednesday. The course was the first part of a sequence of courses that gave students CISCO training for the networking tools used by professionals. Ultimately the class prepared students to take a CISCO certification test at the end of the semester. Finally, the researcher observed a horticulture construction management class taught by a white male with four females and seven males. This course contained no ethnic or racial diversity. The class met once a week on Saturday for three hours and focused on hands-on training with the students. The training attempted to prepare students to build structures for an outside area dedicated to plants.

Observations. The observations attempted to capture how the microaggressions exist within the classroom. Observations occurred in a variety of class formats, including lecture, group work, tests, or outside work. The observer received permission from the instructor prior to the class to do observations. Prior to the start of the first class, the observer asked the students whether or not they wanted to participate in the observation portion of the study. No students for this study stated that they did not want to participate in the observations.

The observer arrived around ten minutes prior to the start of class, found a non-disruptive section of the classroom, and avoided interactions with students or faculty in

the classroom. Observations for the information technology class occurred for a total of fourteen and a half hours thru five classroom observations. The horticulture class received a total of 11 observation hours thru five classes. Finally, the engineering class received 13 hours of observation time thru six class periods. In a notebook, the observer noted interpersonal interaction, the physical classroom space, representations of the field in posters, texts, and instructional aids (videos, manuals), and how students positioned themselves in seats and laboratory space (See Appendix F for observation protocol). The observer also noted the demographics of the classroom for each class. Every class had notes relating to the interactions between the females and the instructor and other students. The researcher noted any adjustments to the physical space such as posters or equipment in the log. Jaime Lester, the thesis advisor and team leader on the project, received all notes, logs at the conclusion of the study, and kept them in a locked drawer in a locked office. At the conclusion of the observations, the researcher transcribed the notes on to a word document and uploaded the notes into Dedoose, a qualitative research software program.

Table 1: Times and hours of observations

Class	HRT	EGR	ITN
Observation 1	9:30-12	11-1:30	9:20-11:30
Observation 2	9:30-12:50	11-1:45	9-12
Observation 3	9-12	11-12:30	9-12
Observation 4	9:40-12:50	11-1:30	9:30-1
Observation 5	9:30-11:30	11-1:10	9:30-12:20
Observation 6		11-1:40	
Total Observations	5	6	5
Total Hours	11	13	14.5

Interviews. The interviews attempted to extract as much information from the personal experiences of female students in their CTE class. The interviews provided the stories that enlighten more information that the researcher may miss. The interviews sought to identify the perceptions of the students regarding microaggressions and what they experienced in the classroom (see Appendix E for interview protocol). The researcher recruited all female students enrolled in the each course, however, the study was entirely voluntary and some females decided not to participate in the interview process.

Female students received an in person notification of the study's purpose and the researcher collected student emails to send more detailed information on a potential interview. The researcher sent a formal email invitation to one female from the ITN class, three females from the EGR class, and three emails to females in the HRT class. From the courses, a total of five females decided to participate, one from ITN, two from HRT, and two from EGR. The researcher sent a follow up email to schedule a time to meet prior or after the class with the student. When selected and the interviews started, the students had to option to withdraw from the study at any time and their information omitted from the official report and notes. The interviews occurred at a convenient time for the students and the student's instructor received a notification of the interviews. Each interview lasted between approximately thirty minutes to one hour, voice recorded and professionally transcribed by Accentance Transcription Service.

The interview questions related to two previous surveys around microaggressions, Microaggressions Against Women Scale (MAWS) and Racial and Ethnic

Microaggressions Scale (REMS) (Owen, 2010; Nadal, 2011). Interviews included questions on why the student enrolled in the course and/or program of study and the student's experiences of the learning environment. A full list of interview questions that each participate received is in Appendix E. The researcher sent the interviews to a transcription service, Accentance Transcription Service, and uploaded the resultant transcription document to Dedoose for future analysis. Each participant completed a demographic questionnaire at the beginning of the interview. The questionnaire (See Appendix C) provided demographic data on students and data on why students enrolled in the particular course. The researcher collected course syllabi, handouts, class protocols, and course materials for document analysis from each instructor. The demographic questionnaire information is typed up, uploaded to Dedoose, and analyzed.

Data Analysis

Consistent with methodological of qualitative inquiry (Mertens, 2005; Strauss & Corbin, 1990), the systematic coding of texts (i.e., interview transcripts and observation notes) served as preliminary form of analysis. The researcher took the observational data from the written form and entered into an online computer software and for this study, the researcher used Dedoose to code. Coding in Dedoose occurs by generating a word or phrase that is related to the activities occurring in the interview transcripts and observation notes. The researcher then highlighted sentences or phrases in the text files and selected codes that associated with these sentences or phrases. The coding attempted to organize the information from the interviews and observations.

Observation Data. For the analysis of the observation data, the researcher used the online program Dedoose. The researcher highlighted a set of excerpts and each received at least one code that related to the excerpt. This set of coding provided a helpful tool to organize the observation data. The codes included seating arrangements, classroom participation, and several others. The researcher put a full list of the codes in Appendix G. From the generated codes, if applicable, the researcher associated the codes with one of the three microaggressive categories, microassault, microinsult, and microinvalidation. If the category does not fall under a microaggressive behavior, the researcher coded the item under a non-microaggressive category. The researcher generated a code co-occurrence chart to understand the connections between the codes generated. The chart provides the number of times multiple codes get used together on an excerpt. Additionally, the researcher, in Dedoose, noted the type of classroom that they occurred in so that the researcher could understand the differences between the classes.

Interview data. The researcher recorded the interviews and got a outside transcription service to transcribe the interviews onto a word document. The researcher downloaded the transcript onto Dedoose and coded for the comments made. The researcher approached the interview transcripts in the same manner as the observational data. The researcher generated excerpts from the data and coded the data using the same set of codes from the observation data. From the codes created by the excerpts, the researcher related these, if possible, to one of the microaggressive categories, which explained the excerpt. Additionally, the researcher cross-referenced the data from

interviews and observations following their initial analysis. The researcher analyzed both the data from these interviews and from the observations separately at first and then comparatively based on this code to generate themes explained in the final section of the results. The researcher created tables to help explain the relationship between the comments and microaggressive actions occurring in the classrooms.

Coding Categories. The researcher used several coding categories to generate the themes from the data. The researcher generated the codes based on the observation data and the interviews with the students in the classes. The codes reflect the interactions between the males and females in the classroom and include the interactions with the instructor. The codes from the classes included information about the interactions with the females: negative environment, negative female to female interaction, negative male to female interaction, negative idea about field, positive female to instructor interaction, positive male to female interaction, positive idea about field, positive female to female interaction. Codes related to the microaggressions that existed in the classroom including female isolation, microinsult, and microinvalidation. Coding included other information about student experience and the type of learning environment such as: background of student, classroom activity, collaborative environment, contradict observations, discomfort, seating location, want to stay in program, and non-collaborative environment.

Limitations

There are several limitations to the research design that impact the study conclusions. First, the study is not generalizable to all female students or CTE classrooms at other institutions of higher education. The information provided comes

from a very large community college and three classrooms, which have limited implications beyond the region. The experiences within a community college classroom do not translate to other sectors of higher education such as online universities, four-year universities, and other institutes of higher learning. Second, the student perspectives in this study do not represent all students. While striving to achieve a diverse group of participants, the sample of students does not necessarily represent the student body demographics. Additionally, not all female students wanted to participate in the interview portion of the study and therefore the input from all females in the observed classes was not possible. Taking a rigid stance on the interpretation of gender that some may not agree will means the inclusion of individuals under the female category that may not always identify as such. Third, the researcher cannot feasibly gather and interpret all potential interactions and microaggressions that occur in the classroom due to their inability to hear all the details of a conversation or to observe the physical interactions. Finally, the study does not take into consideration the cultural or racial understanding that each individual has prior to the start of the class. The complexity in doing a ethnographic study is in the interpretation and telling of the individual stories and creating meaning out of these stories through themes from each female.

Researcher identity and bias

The researcher had to take into consideration any potential bias or conflicts that may result because of the identity of the researcher. The identity factor becomes relevant particularly during the interview process and in a limited manner, when conducting observations. The researcher is a young, white, male graduate student. As a male

individual studying microaggressions against females in non-traditional fields, I inherently hold a few biases. In order to better conduct the research, I made sure to identify and understand the types of biases that I hold in order to reduce the effects this may have on the research. First, as a male student I came into the interview and observation process with a male perspective that left me perceiving the classroom setting in a different way than the females. More specifically, I did not react or interpret information in the same manner and my previous experiences had desensitized me to particular attitudes, verbal, and non-verbal microaggressive behavior. As a result, this affected how I engaged in the study and how I interpreted each finding. My role as a researcher did not allow me to identify all potential scenarios or acts of microaggression in the classroom. My interpretation of the situation potentially differentiated from the females in the classroom and thus reduced the probability of documenting the negative experiences.

Additionally, as a male individual, the interviews presented another situation that affected the outcome of the study. Despite the researchers intention to provide a comfortable and respectable environment for each interview, the female students still revealed only a limited number of details about their experiences with male students. Previous research found that gender plays a factor in responses during the qualitative interview process (Broom, Hand, and Tovey, 2009; Vähäsantanen & Saarinen, 2013). However, several other factors associated with the interview, such as demographics and the interview topic, affect the resulting dialog between interviewer and interviewee (Broom, Hand, and Tovey, 2009). As a result, the presence of a male researcher may

have had an influence on the statements made by the female participants. Controlling for this factor was not possible for the current study but important to note when regarding the results.

CHAPTER FOUR

The preceding sections introduced the concept of microaggressions and how they exist in career and technical education classrooms at a specific community college. The following section describes the common occurrences during the observation periods. The section also considers some common comments made during the interview process with the females. The section also presents a detailed depiction of the classroom environment, the physical space, and the students and instructors that preside within the classroom. The section describes the interactions that occur between the peers and instructors to help reveal the experience of a student in the classroom. The descriptive analysis attempts to present the information in a way that reveals the nature of microaggressions in the classroom. Since microaggressions present a difficult behavior to understand, the interviews and observation notes resulted occasionally in contrasting information. The researcher took this into consideration when providing an analysis of the classroom.

The observations occurred in a few types of classroom environments during the spring semester of 2014 at three different locations at a community college. Each class provided a unique and different perspective than the others and therefore, the classes each received individualized attention to provide a greater understanding about how microaggressions interact in the classroom. The first section looks at the horticulture construction class that focuses on the construction of plant habitats and other garden

structures. The second section provides a glimpse into an information technology class that focuses on the networking technologies of CISCO in a small intimate classroom. The third section focuses on an engineering class that offers a distinctive perspective on a female taught STEM course. The last section provides an overview of some major themes from the collected data.

Finally, intermingled with the classroom description, the individual perspectives of the female students from the interviews create a detailed analysis of the classroom environment, related to microaggressive behaviors. The interviews conducted throughout the semester provided an alternate perspective on the stories that are told through the classroom observations. Despite the interviews not revealing as much information as initially thought, the respondents provided some key points to take away from the classroom experience. The section incorporates the interviews into the dialog about the observations made in the classrooms. Below is a table describing the five female students interviewed during the semester.

Table 2: Interviewed Students

Student	Course	Age	Number of Years in College	Work	Citizenship
1	ITN	27	4	No	Student Visa
2	HRT	53	4	Yes	U.S Citizen
3	EGR	19	2	No	Resident Alien
4	HRT	53	2	Yes	U.S Citizen
5	EGR	21	2	Yes	Resident Alien

Presenting a clear picture on the role and position of the observer, gives an idea for how and why particular events and interactions got interpreted a certain way. The observer had to record and ultimately interpret the information gathered, which places a lot of the observer's bias and previous knowledge onto the interpretations. For all but one observation, a male individual had conducted the observations and through these notes, the observer drew the conclusions highlighted in the next section. The male observer attempted to separate himself as much as possible from his predispositions and provide a neutral stance as an observer. Despite the observers knowledge of the microaggressions and how they interact in certain settings, based on previous research, the observer may not maintain a neutral stance at all times. Therefore, a female may perceive some of the highly masculine or microaggressive activities differently than a male observer.

Observations and Interviews

HRT. The HRT class, horticulture construction management, meets on Saturdays from 9:30 am to 1:00 pm at one of the community colleges campuses on the edge between suburbia and farm country. The course teaches students about applications of commercial landscape construction techniques and materials. The course attempts to inform students how to develop a maintenance plan, estimate building materials costs, identify resources for construction, and several other landscape activities. The course made a transition between the first half of the class to the second half by shifting from an indoor lecture in a lab to two outdoor construction projects. Only the first observation of the class occurred inside and this happened because inclement weather had prevented the

students from continuing to work outside. All other classes required students to engage in the construction project outside. The students worked directly outside of the classroom near a HVAC unit and patio and behind a shed near the greenhouse. The majority of the activity occurred in these two locations and on occasion the students would work in the shed or a storage area 100 feet down the sidewalk.

The first project revolves around building a tall fence surround the HVAC unit near the classroom building. The HVAC unit area resides adjacent to the large main building that holds the classroom and a patio area that has several locations to place plants. The patio has a central pottery structure and consists of stones set up in a square with four short walls encompassing each corner and only partially extending out on the stone. The HVAC unit dwells to the left of the patio in a small square of grass. The unit is around seven feet tall and takes up the majority of the grassy area. The students built a fence that surrounds the HVAC unit on three sides, leaving one side open in the back for maintenance to repair or adjust the unit.

The second project focuses on building small-embedded greenhouses behind the workers shed for plants. The instructor planned to have the second site on the backside of a large shed that is directly opposite of the blacktop road from the HVAC unit and the fence being built around the unit. A little gravel area leads up to the shed location and on the left side of the shed is a large greenhouse. Behind the shed students dig up three four foot by three foot by one foot holes and attempt to flatten the surface as the holes are dug on a slight downhill slope behind the shed. Students worked directly outside the shed on the different types of saws to create the wood pieces for building the three small

greenhouses. The students would work on the black top on the front side of the shed as well when dealing with larger pieces of wood. The facility had some alternate tools and materials located at a junkyard on campus a few hundred feet up the road from the two construction sites.

Instructor. The instructor is a middle aged white male that has a breadth of knowledge on horticulture construction but has a background in computers. He combined his interest of computers and the horticulture field and designs outdoor structures through computer software programs for homeowners and companies. He uses his previous knowledge of computers to teach the class about using software programs to create landscape designs for potential clients. The instructor prefers to avoid using lectures in the classroom and instead prefers to teach students by providing them with experiences that require active learning rather than passive learning. In the first observed class, he proudly showed a photo presentation of him and several other male individuals from a previous class doing a build of a gazebo and surrounding structures for a flower show. The instructor typically wanders around providing advice and direction on how to perform tasks and occasionally gives insight to the students on some additional best practices related to other types of construction projects.

Students. The course typically has five active female participants and one female who is not active in the physical construction projects but still regularly attends the course for her own knowledge acquisition. There are seven male students in the class as well. Each class, a new combination of students arrives and each student decides to arrive and leave at their own leisure based on a wide variety of factors. Most of the

students in the class are returning or adult students and each bring their own experiences and knowledge about horticulture construction. Two of the male students are younger and look no older than 25 years old. Several of the male students have had experience in construction and two males currently work at a construction company. Several of the females work at garden centers around the county but all of the females lacked experience working for a construction company. The difference in prior construction experience between males and females in the classroom played a role in how the students interacted throughout the observation period.

Classroom Activities. Students in this class worked on two projects throughout the observation periods, one focused on building a fence to surround an HVAC unit and the other project focused on creating a small, imbedded, greenhouse behind the shed. Each project required a significant amount of physical labor and required knowledge of construction and carpeting techniques. Students were required to lift heavy timber, dig holes, and use power tools during each class period. The construction nature of the course made the interactions between males and females different than any other horticulture class at the college. Most other horticulture classes focused on the chemical processes of plants, and appropriate plant treatment.

Each class period presented similar types of interactions between the males and females as well as between the instructor and the females. During the first observation, the students stayed in the classroom because of the excessive amount of rain. The classroom looked similar to a traditional high school science lab with a table at the front of the room and five rows of two columns of tall fireproof tabletops that fit three students

each. The class contained workstations that surround the three back walls, each holding a variety of beakers and science tools for more chemistry and biology oriented courses. A limited number of students attended the course but each decided to sit at a separate table from the other students. At the first observed class, the students foreshadowed the future environment and peer interaction when activities moved to the outside construction sites. Throughout most of the class, students rarely interacted with each other and the females sat separate from the males. For the rest of the classes, the students meet outside of the building at the two sites mentioned above.

The course tried to teach students how to develop a maintenance plan, read and interpret a maintenance plan, estimate building and labor costs, identify appropriate equipment, and identify local resources for construction materials and plants. The second half of the class had only two goals, which were to finish both of the construction projects by the end of the semester. Each individual class the instructor would set some goals for the students to meet on each project but did not forcefully require any of these. Additionally, the instructor provided limited guidance to the students throughout the project but usually took time to answer questions and provide diagrams when needed. This allowed students to freely roam from project to project and decide on which activity they would prefer to work on during that class period.

Female Isolation. Female isolation became a common occurrence in the classroom during both of the projects. The female students preferred to surround themselves with other female students. As noted in an interview, "this is the first time that I've seen that separation a little bit." I noticed the males had a greater level of

comfort with working on the construction oriented materials; "the construction part of it is more traditionally male-oriented and they're physically more able to do a lot of the things." During the start of the first class periods, the male students took the initiative to work with power tools, which from the start divided the males from the females students because during the observations the male peers and instructor frequently did not take the initiative to teach the females. The isolation reoccurred throughout all of the observations. The nature of the isolation reveals a microaggressive environment. This was due to the fact that the occurrences of isolation were not isolated to one or two times, but instead occurred over several classes and during several occasions during those classes. Through five class observations, the researcher coded for isolation 14 times based on the observation notes. These reoccurring acts have a impact on the classroom setting.

The isolation between males and females relates to the previous research on microinvalidations. As mentioned previously a microinvalidation occurs when behaviors demean the psychological thoughts and feelings etc. of their targets (King, et al., 2011; Pittman, 2012; Sue, 2007). In the classroom according to the observations and interviews, the isolation results from the male's greater knowledge and ability to perform construction related tasks. In an interview a student stated, "it is more traditionally male-oriented and they're physically more able to do a lot of the things, so I am not at all hesitant to stand back and let somebody else dig the hole." The female students tended to allow male students to take over the activities and observations have noted males taking over activities from female students. This type of behavior makes a female that she does

not have the capabilities to complete a specific task. However, according to at least one of the females this behavior appears to come voluntarily. Since the interpretation of the isolation is subjective to the individual female, the results only represent the behaviors that were interpreted and recognized by the female.

Microinsult and the masculine sub-culture. In the HRT class, females also experienced a few negative interactions with the other male students throughout the observation period. The classroom environment felt and looked masculine and the interactions with the material and projects appeared to be dominated by male students. This type of environment was consistent throughout all of the class periods and resulted because the course required construction work, a traditionally male field. The environment created by the male students and instructor resulted in several microinsults. As mentioned previously a microinsult is a behavior that is rude and insensitive to an individual's identity, typically unconscious or unintentional (King, et al., 2011; Pittman, 2012; Sue, 2007). One of the most common microinsults in the class involved males taking over the jobs that females were doing. The females in the interviews, counter to what I had thought, accepted their role, as made apparent by the comment: the "construction part of it is more traditionally male-oriented and they're physically more able to do a lot of the things, so I am not at all hesitant to stand back and let somebody else dig the hole." This type of reaction relates back to the study by Baxter (2010), which stated that females adapt to masculine cultures in the classroom. Despite this, actions of microinsults continued through the class. One of the more obvious times of this type of behavior was while a female and male student were working on putting concrete into a

hole to stabilize a pole for the fence. One of the males went to get the wheelbarrow and the large bag of concrete mix. The male poured the concrete mix in as the female poured water over the mix. The female began to attempt to mix the concrete with a shovel and asked the male about the appropriate technique and how much water to use. The male decided to instruct the female by showing her how to mix the concrete and let her know when the mix had finished preparing. However, instead of letting the female continue to work on the concrete the male continued to work until the concrete was ready and poured into the whole himself. The female instead was left to watch the male work on the concrete and eventually moved on to work on a different part of one of the projects. This occurred on several occasions throughout the many observations. This also falls under the classification of a microinsult because the male is performing a task for a female that he may feel a female is unable to perform. This not only prevents the female from learning by doing but also reinforces the fact that the female should not attempt to perform a challenging construction oriented task.

Verbally, the instructor and some male students made on some occasions talked by using inappropriate language which created a fostered the masculine subculture. During the last observed course, male students were heard using curse words while working on the power tools. These were few and far between but occurred during a few class periods. Most comments were associated with a female's ability to do a physical activity or how she may or may not have done something correctly, which categorizes them under a microinvalidation. During one of the class periods, a male student told a female that she could not carry the water hose and in the same course, the instructor

informed the female that she would not have the strength to carry the wood. These comments were not halted or subdued by the instructor. Because no one stepped in to confront the issue, the conversations continued in the same manner throughout the semester. The horticulture class presented two types of environments for the female one, a sense of isolation from males, and two the masculine sub-culture dominating the environment, and each having an impact on the female students.

ITN. The ITN course, CISCO networking course, meets on Monday and Wednesday for the second eight weeks of the spring semester on one of the community college's campuses. The campus sits near the edge of farmland and the furthest suburb from a large city. The course occurred in a newly designed classroom on a floor dedicated to computer science students at the college. The classroom had computers set up around three of the four walls and in the center, a tall table that held enough space for ten computers. The computers were older models of a dell and each placed directly next to another as to maximize the number of computers. Higher up on the wall sat multiple shelves that held advanced tools for other types of classes. On the back wall were the observer sat, there were several highly advanced forensics computers that students in the class did not use. The central table piece is three and a half feet off the ground and had enough computers next to one another that made seeing the individuals on the other side of the table difficult. The computers and table created a dividing barrier between the two sides of the classroom and made the room feel more condensed. The classroom is small but contained enough computers for around 20 students. Each student had a computer available to use, which had access to the CISCO program for the course. The classroom

had a whiteboard that covered the front of the wall and a newly installed projector, directly above the whiteboard. In the back of the room has an opening to a storage space with several shelves and a 3-D printer as well. The instructor rarely used the back section of the classroom and none of the technologies that were back there were used for a lab or for a demonstration.

The course prepared students for a CISCO certification that relates to networking security and framework. The class covered material on networking terminology, designing networks, defining IP addresses and their purpose, as well as performing subneting, and other related networking material specific to CISCO. The learning outcomes for the course include IP addressing, TCP/IP protocols, signals, topologies, network architectures, and several other network related material.

The instructor. The instructor comes from a military background; however, he did not participate on the front lines but instead sat behind the front lines working with computers. The instructor is around average height, dresses with khaki pants, a nice long sleeve cotton collard shirt and shoes that looked comfortable but also professional. The instructor is an energetic and passionate older white male who has spent the last several years working for the community college and has worked at several other colleges throughout his career. The instructor understands that the course requires students to take a certification exam at the end of the semester and he tailors the information in each class to potential questions on the certification. Additionally, the instructor appears lenient on deadlines and allowing students to make up tests and work materials. He does not want to appear strict to his students and instead attempts to create a more personal experience

for each student. The instructor enjoys talking to students and even the observer during a spare minute. The instructor showed great interest in the success of each student because there were only six students enrolled in the course. Additionally, the instructor showed great interest in the research and displayed an understanding of the lack of female participants in his field.

The instructor set a strict daily classroom schedule that focused on providing a few different educational elements. Each class began with the students taking a quiz on their computers on material related to the previous course. These quizzes were to help the students prepare for the end of semester test and for the CISCO certification test as well. After the quiz, the instructor would begin a lecture on the next chapter for the students. For the lectures, the instructor used a significant amount of power point slides and used frequent inquiry with the students during the lecture to keep the students engaged in the material. Towards the last two observations the instructor continued to give quizzes out at the beginning of the class but left much of the rest of class open for discussion of any topics from previous chapters to prepare for the certification test and final.

The students. The class contains five male students and one female student. A different set of the five male students showed up for each of the observations and the female student showed up to all of the classes. The student population consisted almost entirely of traditional college aged people with one exception. The one adult age student had previously played football and became more talkative as the class moved forward. The classroom contained a high percentage of ethnically diverse students. Two of the

males were African Americans, one was Middle Eastern, and two were white. The female is a South American who hails from Brazil. She had decided to switch career paths towards computer science, which is what her parents do in Brazil. Her experience of coming into the United States and going straight into college put her in a difficult situation because she had to become more efficient at English while taking classes related to her major. The course is a part of a sequence of courses for students to become officially certified for networking by CISCO. Each student had come into the course with a similar previous course load at the community college in computer networking.

Microinvalidations. One of the most striking things that occurred in the class involved the professor during his lectures in the first three observed courses. During most of the noted lectures, the instructor would begin to focus his attention towards the male students. The division in the classroom design made the diversion of attention to one side of the room more obvious than in a traditionally classroom. Additionally, when the instructor began to inquire the students about the course material his eyes and attention would focus directly on a particular male students in the room. During the second class-observation, the instructor began by lecturing to the students, referring to the PowerPoint throughout. At one point during the lecture, the instructor asked a question to the class and a male student in the front answered. Afterwards, the instructor for the next thirty minutes would continuously ask the same student any future questions and did not provide opportunities for other students to participate. Throughout the observations, the instructor never provided the same attention during the lecture to the female as he did to the males in the classroom. The lack of attention towards the female led to her

participating in the classroom discussion on rare occasions if at all. The instructor may not have been purposefully giving the female the opportunity to speak but he provided an environment that did not encourage or seek out discussion from the lone female in the classroom. The lack of attention and discussion transitioned later in the course when the instructor began providing more individualized help to the female student when he did not lecture and instead allowed the class to discuss any topic. The resultant is a mixed message to the female student who one may feel inadequate during the lecture and discussion portion but feel appropriately helped when presented situations for individualized help.

Female isolation. Another particular behavior that occurred in this networking class along with the other three observed classes was a separation between the males and female students. In this class, the female isolation appeared more overt compared to the engineering class, discussed later and the horticulture class discussed previously. As described previously the classroom splits in the middle because of a high table with monitor screens blocking the view to the other half. In the class, the female sat on the side with only one male student, while four males sat on the other side. The female did not interact in a significant way with another male until the third observation. This interaction had initiated due to the instructor asking the students to talk to someone near them about a practice problem. Throughout the rest of the observation periods, the female did not appear to talk with the other male peers in the classroom. The female during the interview, stated "oh yeah" when asked if she interacted with males in the classroom. This contradicts the observed behaviors in the classroom. The female may

have thought that I wanted to talk about all of her classes, as her following comment mentions, "[i]t depends. There's some classes there they are kind of I would say on their own and I'm by myself." This statement also reveals that at times she feels alone in the classroom, which is what she appears to experience in the networking classroom. I think the isolation in this class is a result of microinvalidations by the male students. The purposeful lack of interaction with the female is a familiar scene as she described in a previous class: "Like I was taking Java, so the Java class I felt I was just by myself. I didn't have… I couldn't really talk to anyone; they were all on their side. So that was really hard." This common experience may deter most individuals but the female has persisted through the program.

Female persistence. Despite the present barriers to the female in the classroom, she has persisted and has stated that "next semester is going to be my last semester, so I graduate." Initially though she had not even considered a career in IT, however, when she "started doing hotel management, and then I realized that I wouldn't go anywhere with that. And the classes was really hard for me." As a result, she switched to IT, which seemed to fit better for her, as her father was a networking administrator and her brother is a software engineer. She mentioned that she always surrounded herself by technology from her childhood. This type of interaction has allowed her to develop an affinity towards the field and she does not seemed so bothered by the lack of females. She mentions how interesting that "in a classroom that has just men and you just wonder why women are not so much into technology, or maybe they're just, you know, not going for that field. But it's okay with me, I mean, I don't have any problems about it."

EGR. The EGR course focuses on engineering related to circuits. This is a class that is a part of a sequence of classes for second year students to take when they are a part of the engineering major. Many of the students in these courses plan to transfer to four-year colleges once they acquire the appropriate credentials. The course occurs on a separate campus from either of the two previous classes and resides closer to a large city. The course prepares electrical engineering students understand circuit analysis using differential equations, theorems, and different physics laws, such as Ohm's.

The course introduces students to electrical engineering, and the tools of circuit analysis in the time and frequency domains using LaPlace transforms and Fourier series. The class is a foundation to all future analysis in electrical engineering. The course provides the necessary tools for circuit analysis in time and frequency domains: Ohm's and Kirchhoff's Laws, nodal and mesh analysis, linear network theorems and other equations. The course covers the material in eight sections from sinusoidal excitations and phasers to transformer coupled circuits.

The classroom. The classroom has the aura of an older building with white painted stonewalls and limited lighting particularly in the far front corner of the classroom. The chairs and desks are hard plastic, resembling a more traditional style of classroom chair design. The chairs are set up in neatly aligned rows and columns, except for in the corner where many of the chairs lean next to each other in a close cluster. Students do not take up the majority of chairs in the classroom. In the front of the room, the instructor has a long table with a small podium from which to present to the class. Additionally, there is a podium with a computer and a document camera. The document

camera is located on the far right side of the class, if looking from the student's perspective. A whiteboard takes up a small portion of the front wall where the projector displays the computer screen or document camera. The class design favors a lecture style course because of the traditional design of the room.

The instructor. The instructor is an older female of potentially middle-eastern decent. The instructor dresses in nice clothes each class and presents herself in a very confident way. The instructor has a set way in which she teaches and does not deviate from this style. The instructor does not seem very warm towards the students and prefers to keep a professional relationship with the students. When she teaches, she tends to sit hidden behind the computer and document camera. Her location makes her appear hidden to the rest of the class because of her height and her seating location. She is an accomplished instructor at the community college and has taught engineering courses at this particular college for many years. She had a high teaching load for the semester as noticed when she informed the students of the large amount of grading she had. During the first observed class the instructor informed the students of the plight of females in the stem field particularly in engineering. She described to her students her own experience as a student many years ago and the difficulties she had as a female moving through the engineering field. The instructor carries the resistance techniques with her and the difficulties that she endured to the classroom. She is a very hard teacher that expects great things out of her students. The instructor, knowledgeable of my presences and intent, informed the students about the large gender gap within the engineering field. Her

presence plays an important role in the classroom dynamics between the males and females and the participation of the females.

Students. Within the classroom, three females and seven male students, although the number of male's students fluctuated for each class, the three females always showed up to class. The classroom is highly diverse as a result of the location of the college, which is close to a highly diverse metropolitan area. The three females in the classroom all come from an ethnically diverse background, with two Hispanic females and one native of India. The males come from a wide range of ethnic backgrounds, and the only white male student in the classroom only appeared during the first observation and never again. A few of the males in the classroom were flaky about showing up and engaging in the classroom lecture material. The females were less absent and actually arrived prior to the observer for almost all of the observations.

Teaching style. The teaching method used by the instructor relates to that of the ITN instructor, minus the classroom discussions. The instructor provided the students with lectures for most of the class period with occasional water and bathroom breaks. Additionally, the class does not lend to group discussions as the instructor uses the document camera to write on a piece of printing paper the necessary formulas and practice problems for the class. The instructor's did not lecture loudly enough for students to hear and did not write clearly enough on the document camera. The sound of paper writing was more frequent than the voice of the instructor. The only interruptions for the instructor were when a student would ask a question or attempt to correct the instructor on a mistake she made when writing a problem, however, these were

infrequent occurrences. After lecturing, the instructor during some observations provided the students with a quiz at the end of class. The flow of the class affected the ability for females and males to interact in the classroom. This had a negative effect on the ability for collaboration and providing excitement and generating interest from students. In a conversation with the instructor, she asked me why I sat through her lectures because they are so boring. The acknowledgement of the poor teaching method by the instructor reveals her desire not to change the course style to better fit the learning styles of the students. The instructor has, at some occasions, presented a negative environment in the classroom. During one of the observations, the instructor raced the students to finish the quiz, which she had finished well before any of the students including the female. The resulting environment feels tenser for the students and makes the students feel less competent of the material.

Female isolation. The classroom design looks similar to a traditional classroom with fixed seating and the instructor standing at the front of the classroom. The design resulted in the instructor focusing on a lecture centered teaching style and the non-collaborative environment resulted in female isolation. The classroom set up holds around forty students but the class only needed 12 seats for the students. As a result, most students spread out throughout the classroom. The female students instead, set up next to each other in an 'L' shape with their desks near the front of the classroom. Comfort level may explain the isolation in the classroom. One female student mentioned that she "… it feels kind of like uncomfortable, it's not comfortable to be like there and be… Because as I said, like for my engineering classes, it's either like it'll be only one,

two, three females, but then the rest would be only guys." The student had known one female in the classroom from previously and had decided to sit next to her and subsequently the third female sat near them. When asked in another email that the female usually works with, she said that "the other two girls sitting here… this semester we three met before exams." The other female attested to commonly working with the females "most of the time in our class when the professor gives us something like some problems or something we actually start working only like in the group like with females." From this we realize that the female isolation comes about more due to choice by the females as they prefer working with each other and as noted in many observations they seem comfortable working together. This also resulted from how the females may feel about the work ethic of the males when commenting about when the males are working on problems in the class, she says "they wouldn't be actually paying attention to the notes or like the problems that we're actually doing in the class." As a result, the females tended to talk with each other and grouped together both in the classroom and outside the classroom.

The female isolation in the EGR classroom differentiated from the other two classrooms because here the isolation has a defined reasoning that did not result from microinvalidations. In the other two classes, the isolation resulted from the actions of male students or instructors and in this class the females made conscious decisions to isolate themselves from the males in the classroom as noted by the previous quotes. As a result, the behavior does not resemble a microaggressive behavior or environment. The presence of a female instructor in the classroom played a factor in the female isolation.

Female Instructor. The instructor to female student interaction played a key role in the female interactions in the classroom. The females appeared very confident and were asking a lot of questions. In this classroom the instructor unlike in the ITN course focused her attention on the female students. This type of attention and behavior deviates significantly from one of the previous experiences a female student in the class had. The student described the situation as such: "Well, when I came in he was like, 'This is an engineering class.' And then he was like, 'I feel like your class will be like the next one'," . In this engineering course, the instructor provided the females with more opportunities to speak out and participate. By giving the female students more attention, the females as noted previously worked closely together during the class and this significantly differentiated in the way the males interacted in the classroom. The instructor even commented how the three females had performed the best on the last test. This type of encouragement provided a positive setting for the females to engage. The encouragement and attention the females received significantly differs to that in the ITN course and partially explains the difference in participation in the course. The males in the room do not interact with the instructor on nearly as much of a frequent basis and were less likely to ask a question or attempt to correct the instructor.

Themes

Throughout the observations and interviews a few themes have arisen based on the information gathered that relate to microaggressions and classroom interactions between females and faculty and other male peers. First, many of the microaggressive behaviors within the classroom of CTE classroom revolve around non-verbal interactions

between the male and the female. For example in a small computer science course, the male instructor consistently focuses on the male students within the classroom and rarely directs questions or comments towards her. Additionally, the isolation of females particularly during group work is a common theme within the CTE classroom. In two of the classes females tend to gather or work with other females on a more frequent basis than not. The behaviors of males not interacting with females may convey the thought that they do not belong in the classroom. Finally, one course involves a significant amount of manual labor and working with construction tools. On a few occasions a male has stepped in to take over for a female using a power tool, conveying a non-verbal microinsult, for which the male believes the female, cannot perform the task. The observation in the classroom has revealed limited verbal microaggressive behavior but has exposed a more common behavior of non-verbal gender microaggressions.

Throughout all three classes, females experienced a form of isolation, but the isolation appeared differently in each classroom. During all three courses females dealt with isolation from the male students and the instructor. The isolation resulted from the females seating location in the classroom or location of the female in the outside projects. The interactions between males and females were limited throughout the observations as a result of the physical isolation.

In the HRT class, females worked on different projects then the males and preferred to interact with the other female students in the class. The other male students partially provided the catalyst for the female isolation by not working collaboratively with the females and by creating a masculine environment. Male students preferred to

take on tasks that required strength and power tools and were not helpful in providing advice or assistance to females on several occasions. The instructor did not intervene in any instance to help alleviate the divide between males and females.

In the ITN course, the female student sat away from most of the other males in the classroom and did not get approached by any of the males in the class nor seek out interactions with the other males. The male instructor perpetuated the isolation by one not providing a collaborative classroom environment to allow for interactions, and two by focusing attention during lecturing towards the male students in the classroom. The instructor here as in the HRT classroom, did not intervene or alleviate the divide that had occurred despite the understanding of limited female participation in the classroom.

The EGR class revealed that the three females preferred discussing questions and material with each other rather than any of the males. The female instructor helped promote the activity through encouragement in the classroom and providing increased attention in the classroom. Females in the EGR class intentionally avoided the male students in the classroom rather than not receiving attention from male peers and instructors, which occurred in the other classrooms. The isolation of the females did not have a negative effect on the female experience in the classroom.

Throughout all three of the observed classrooms, the demographics of the students differentiated across all three observed courses. The classrooms observed had diverse and non-diverse students that existed in the classroom. Diversity includes the race, gender, age, and other demographic information that relates to the students.

The EGR classroom consisted of a wide range of students from different ethnic backgrounds and even the instructor originated from a diverse background. Two of the females in the classroom were Latina's and one was a native from India. The female instructor appeared to reside from a Middle Eastern or Eurasian country. During the interview with the Latino and Indian student, each discussed the effect of not being a native English speaker.

The ITN course had a smaller amount of diversity than the EGR classroom but still contained a variety of individuals. The classroom had a white male instructor and two other white male students. The rest of the males in the class were from a variety of ethnic backgrounds including African American and Indian. The one female in the classroom originated from Brazil and had only recently come to the United States to pursue a higher education degree. The interview revealed that her background provided difficulties initially but as of the current class, she has overcome the language barrier.

The ethnic and age diversity in the classroom related to that in the EGR course. In both classes female students had to overcome other barriers that did not include their gender. In interviews with females from the ITN and EGR class, the language barrier came up as a previous or current hindrance to the success in their course work. Keeping in mind these alternate barriers provides a better idea about the experience of the females in these two classes. The females in the HRT course, however, did not face a similar situation.

The HRT classroom contained no ethnic diversity and a larger range of student age groups. All of the students, male and female, were from a white background and

ranged from recent high school graduates to individuals in their late 50's. A female that I had interviewed noticed that the classroom lacked ethnic diversity and surprised that no Latino(a) students took the class. The females in the class were therefore not affected by any predispositions such as a language barrier to impede their success.

The style and approach to teaching in the classroom appeared as another theme that differed between each class. The approaches to teaching as discussed previously, partially determine the enjoyment and understanding the student takes away from the course. Two of the courses used a similar teaching style while the third significantly differentiated from the other two.

In the HRT course the instructor used a hands on approach and allowed students to generate their own groups to work on outside construction activities. The instructor informed students of the two major projects during the middle of the semester and then provided sub-projects for the students throughout each class. The instructor provided students with some help throughout the process and typically maneuvered to each working group throughout the period. The environment provided an open forum for students to choose what to do and where to work, which left females isolated from males or providing the back up role. The hands-on environment, however, provides the most ideal environment for the females in the classroom who praised the teaching style and informed the researcher of the importance of working in this type of classroom compared to other more traditional classes.

The other two classes, ITN and EGR, approached teaching in a similar manner. Both instructors provided lectures to the class using two slightly different formats, the

EGR instructor wrote example problems on the document camera, and the ITN instructor provided power points on all the necessary material. Although both classes provided relevant examples during the lectures, both omitted group work as a part of the classroom activities. During the ITN lectures, the male instructor focused on gaining participation from the male students in the classroom and the EGR instructor focused getting female participation, if at all. The contrast in focus of the two classrooms relates to the male teaching the ITN course and a female in the EGR course. The teaching methods used in all three classes had an effect on female participation and the enjoyment level that females had in the classroom.

Finally, a major theme that appeared during the interviews involved the desire of all the females to retain in the course during that semester. Despite the presence of non-verbal microaggressions in the classroom setting, each female retained throughout the course and the interviewed females had stated a desire to complete their studies in the program and potentially pursue more advanced degrees. Each interviewed female had their individual reasons behind their progression in the program.

The female in the ITN course had pursued the degree after dropping a different program and decided to enroll in computer science, something that other family members had done previously. The support from family and background with computer science had provided her the opportunity to pursue the degree and her ability to overcome the in class microaggressions allowed for her to continue through the semester.

The two interviewed females and the third female from the course relied upon each other for support during the class. During the interviews, the female described that

the three would meet outside of class to talk about assignments and concepts for upcoming tests. This type of support system and the general lack of microaggressive behavior in the classroom provided the females with an ideal opportunity to persist through the class.

The HRT class had several female students and the two interviewed female students had stated the desire to finish the program. Both interviewed females had described having families at home that took away from their ability to finish the program faster and also forced them to miss a class or two during the semester. Despite the course containing the most prevalent source of microaggressive behavior albeit non-verbal, the females did not realize their existence or believe that any males were obstructing their ability to persist in the course. The persistence of the females among all three classes resulted due to varying circumstances but each culminated in the same conclusion.

All of the themes that were discussed previously relate back to some of the themes discussed in Nadal's (2013) book on gender microaggression. In the current study, the researcher has put a description of Nadal's themes with associated microaggressions next to the current studies themes in Appendix H. A commonality between the two includes the theme of isolation or as Nadal states, invisibility and this theme falls under the category of microinvalidation. Additionally, the assumption of traditional gender roles comes up in both the classroom activities, masculine sub-culture and the non-verbal microaggressions that occurred throughout the current study, particularly in HRT and ITN. Understanding the connection between the two studies

helps add to the knowledge of the microaggressive behaviors females get subjected to in male-dominated classrooms.

CHAPTER FIVE

The study began with two purposes, one, to understand the nature of microaggressions in CTE classrooms and two, how do the existence of the microaggressions effect the retention of the females in the courses. The previous chapter provided analysis of the three observed classrooms and integrated the interviews of five of the female students in the three classes. The results explained the presence of female isolation, microinsults, microinvalidations, and the effects of different instructors on the classroom. Ultimately, each class presented a different scenario for how microaggressions existed in the classroom. The prior chapter provided an overview of how the classroom experience for the females.

The following chapter looks at the intersection between microaggressions and non-traditional female courses within career and technical education. Specifically, the chapter first looks at the apparent absence of verbal microaggressions and why this may have occurred. Secondly, the chapter focuses on the presences of the non-verbal microinvalidations and microinsults that existed in the classrooms. Thirdly, the chapter concentrates on the appearance of female isolation in the classroom and the different ways that the theme appeared in the classroom. Fourthly, the chapter focuses on a variety of teaching methods and the effect these teaching methods had on students. Finally, the

chapter reviews the retention rate of the females in the classrooms and why a high rate existed. In addition to these analyses, the chapter provides some further insight after the studies analysis. The chapter concludes by focusing on potential future research, implications of the research on the study of microaggressions, and ultimately the implications for this study in practice.

Absence of verbal microaggressions

In all three of the classrooms, the researcher noted from the observations that verbal microaggressions did not occur in the classrooms. The lack of the verbal microaggressions resulted from several factors that relate to the classroom environment created by the instructor and students. The literature focuses more on the presence of verbal microaggressions and how these affect students in the classroom (Boysen, 2012a). The verbal microaggressions are more obvious to students and therefore require an intervention from the instructor to alleviate the situation (Sue, Lin, Torino, Capodilupo, Rovera, 2009). However, each classroom in the current study lacked the existence of verbal microaggressions that previous researchers have noted.

Several factors contributed to the lack of verbal microaggressions including two of the courses allowing limited time in class for discussions with peers or with instructors. The two classes, ITN and EGR, limited student conversations to short five-minute breaks and side conversations. The other class, HRT, provided more opportunities for interaction between students and instructors due to the collaborative activities that the instructor scheduled for each class. However, the class consistently saw females and males interact and converse on a less frequent basis as shown in the

previous chapter. The researcher had a limited capacity to hear and see all conversations that occurred in the HRT class and this limited the researchers ability to capture any potential verbal microaggressions in the classroom. Among all three classes, the lack of verbal microaggressions made the classrooms appear more equal and harmless to the students than in actuality. Previous studies have found that non-verbal microaggressions associate to verbal microaggression but both have similar effects on the student (Solorzano, Ceja, & Yosso, 2000). The facade of a harmless environment partially explains the females not mentioning a negative classroom environment or any negative experiences with males in the classroom during the interviews. Instead, as explained below, the researcher observed non-verbal microaggressions in each classroom rather than the typical verbal microaggressions seen throughout the research. The following section explains the presence of the non-verbal microaggressions and the environment created in the classroom as a result.

Microinvalidations

Despite the lack of verbal microaggressions, the environment and presence of non-verbal microaggressions had a role in each class. In particular, students displayed behaviors relating to microinvalidations. As described previously, microinvalidations are a form of microaggressions that demean or devalue the experience of the female student (King, et al., 2011; Pittman, 2012; Sue, 2007). The microaggressive behavior occurs either in a verbal or non-verbal form, with the non-verbal form being a more subtle experience. In the non-verbal form, microinvalidations create a constant and virtually undetectable way of damaging the thought process of an individual while in pursuit of a

particular degree (King, et al., 2011). Individuals experiencing and using microinvalidations remain unaware of the behaviors and the effects the behaviors may have on future decisions. Since the receivers typically do not recognize the actions, confrontation of the situation does not typically occur. As previously found in Sue's (2009) study, students prefer to have conversations about the present behavioral issues rather than leaving them left alone. Throughout the classes, the researcher observed these types of behaviors in a non-verbal form.

Females in the observed classes, particularly HRT and ITN experienced a non-verbal form of microinvalidations. The instructor and students helped perpetuate the role of the microinvalidations in the classrooms and the way the microinvalidations existed in the classroom. Previous research suggests that microaggressive behaviors reduce the likelihood of female students retaining in the program and the future presence of females in the program (Glass, Sassler, Levitte, & Michelmore, 2013). However, the interviews revealed that the females in the classroom had a desire to finish their studies in the program and some desired to further there degree progress beyond the associates level.

In the ITN course, the instructor displayed a lack of attention towards the female student during his lectures. This type of experience by the female relates to previous studies that found females experiencing differential treatment and interaction from the instructor (Trusty, 2002). The interactions relate to research done by Wasburn and Miller (2006), who found male students received more attention in the classroom setting than females. The lack of female attention in the classroom occurred on a frequent basis

during the observed periods. A different form of a microinvalidation appeared in the HRT course.

In the HRT course, females experienced an environment that perpetuated the traditional roles of females. Nadal's (2013) book on microaggressions discusses the assumption of traditional gender roles, which relates to the current study, as a theme of microaggressions. The class felt more associated with a construction course rather than a horticulture course and since construction is a traditional male field the assumption of traditional gender roles became more prominent. Females in the course were made aware of their role in the classroom and conformed to the traditional roles that would set them up for the path of least resistance. A female student had stated in an interview that she felt better about stepping aside and lettering a male take over the project rather than continuing her work. The students felt the need to conform to traditional ways and this effected how work got done in the class. Additionally, in line with Nadal's (2013) study, the females in the HRT course became passive about the microinvalidations. Females did not recognize or confront any of the male students about their separation from tasks or the male taking over the tasks. The females may have let the actions go because they did not know of their presence due to the non-verbal nature. Additionally, the females may have believed that confronting the problems did not provide a solution.

Female Isolation. Female isolation existed as one of the most common and evident occurrence in the all three classrooms. Nadal (2013) presented invisibility as a theme from the discussion of microinvalidations, which relates to the isolation seen in the study. Isolation in the classroom received some attention in the literature as well;

researchers found that female math students experienced isolation during their undergraduate experience (Borum & Walker, 2012). The isolation existed in all three classes and occurred in a variety of ways in each course, including the absence of talking with other male students, the physical location of the student, or the separation/ limited activity with the instructor. The following section describes the interviews and observations that related to the theme of female isolation.

Female students in all three classrooms clustered around each other in different ways and for different reasons. In the ITN course, only one female enrolled in the class and sat on the opposite side from all but one of the male students. The female had recognized according to the interview that she has felt isolated in this class and in others . Her isolation in the classroom resulted from the design and the female's seat selection. Her selection of a seat opposite the side a clustering of male students displays the divide between the genders. Previous research found that females had experienced this type of isolation from peers and may have resulted from gender stereotypes (Stoilescu & McDougall, 2011). In the horticulture classroom, the females worked together consistently and usually did not involve males in their activities. The students had the opportunity to work on a selection of projects throughout the class, thus providing the opportunity to separate. As a result, a complete divide between males and females occurred at certain points during the class. The classroom culture affected the separation of males and females due to the construction nature of the class and the masculine sub-culture. In the engineering classroom, all of the females sat in the same three seats next to each other for all of the observation periods while male students changed seats

throughout the class. The females had made a distinct choice to sit next to each other throughout the course. As noted from the interviews, the females relied on the support from their female peers and the instructor, which both actions have shown to create a positive perception about the female's work (Zeldin, Britner, Paiares, 2008). Females did not seek the support from other male students in the classroom due to the lack of knowledge of the material and participation in the class. The HRT classroom contradicted the participation and knowledge of the males in the EGR classroom.

In each classroom the female isolation came due to the reinforcement they received from each other, the comfort level each had, the similar knowledge base and partially based on the socialization that they have become accustomed to in male dominated classrooms. The female students receive sufficient reinforcement from other female students while in the classroom which makes them feel more likely to do well in the class and enjoy the experience. In the engineering class, the female students appeared to interact with each other on a frequent basis and would provide sufficient help. In a recent study, researchers found that self-efficacy improved for females that received messages and vicarious experiences from peers and instructors (Zeldin, Britner, Paiares, 2008). From the observations notes and the interviews, the EGR females had experiences that provided them with the types of messages that encourage continuation in the program. In an interview with one of the females, the interviewee mentioned that male students would not help increase her knowledge of the material because she feels as though they do not pay attention as much as her female counter parts and therefore, relies more on the females advice than any of the male students. This type of attitude became

apparent in the horticulture class and many of the female students tend to work together and were reinforcement for the skill level. In the class, the females equally understood construction work materials and use and therefore, they worked together to present a positive form of reinforcement for the skill level, rather than being around other male students who had more experience and greater knowledge. Reinforcement provides one piece of the explanation for why the isolation in the classroom existed.

The instructor took a role in the way female isolation occurred in each class and ultimately affected the student experience. Research has shown that generating female role models in non-traditional fields helps to promote female participation in the programs (Kim, Fann, & Misa-Escalante, 2009). The EGR course provided the female role model in the form of the instructor. This helped the female students feel less isolated in the classroom. However, a lack of a female faculty in the discipline, illustrates to the females students pursuing that career that the program does not attract female candidates (Blickenstaff, 2005). A female instructor or role model did not exist in either the ITN course of the HRT course. In the networking course, the instructor, during lectures, rarely interacted with the female side of the room and did not encourage her interacting in the classroom or with the other male students. As a result, the female became isolated in the classroom from the male peers. In the horticulture classroom, the instructor did not encourage individuals to work in different groups or provide obvious opportunities for females to interact or learn from the other male students. Instead, students left to their own choices in who to work with gravitated towards the individuals of similar gender in the classroom. Additionally, the instructor provided some consulting to students on how

to use certain materials but felt as though he did not provide the necessary support and left some of the instructing to the male students who were less than adequate at performing this task on a frequent basis. These types of experiences and settings the instructor sets up in the classroom provides a partial explanation for why the females tended to become so isolated within the classroom.

Teaching Methods

An important aspect to the classroom, as discussed in the literature review relates to the effect of the type of teaching methods the instructor used, including the use of a competitive, collaborative environment. The research had previously found that females preferred a collaborative environment to a competitive one (Seymour & Hewitt, 1997). Additionally, recent studies have found a difference in female satisfaction with STEM courses teaching methods (Wasburn & Miller, 2004-2005). The teaching methods used in the classrooms studied relate to what has been seen in the research and STEM instructors in non-traditional fields prefer a non-collaborative environment.

Collaborative. The collaborative environment plays a favorable role in retaining female students and keeping them interested in the material. Previous research has mentioned the use of this type of teaching technique, including Margolis, Fisher, and Miller (2000), who stated that females prefer to be given real-world examples and active involvement with the material. During the interviews, several of the students from the horticulture class mentioned the enjoyment from receiving more hands on attention from the instructor and being able to work with other students on projects. In the interviews, students cited the practicability of working in a collaborative environment because in the

working world, they would have to work alongside other individuals and create projects with other people. Females cited the necessity in building these types of skills in order to make them more work-force ready. The female from the ITN course had not experienced any type of collaborative teaching environment in the current class but cited participating in group work with previous courses and felt that these generated the most valuable experiences that she had encountered in the classroom. The collaborative environment helps students feel more connected to their peers and allows for learning to occur not only between the students and teach but also from student to student. This is a central reason behind the female students enjoying the collaborative environment and mentioning the good learning experience from the classroom.

Non-collaborative. In the other two classrooms, the teacher created a non-collaborative, and at times a competitive environment for the students to work. Previous research has noted that females do not find competitive or non-collaborative environment conducive to a good classroom environment for females (Seymour & Hewitt, 1997). A non-collaborative environment generally focuses on teacher-centered instruction such as lectures or videos. For example, the ITN course focused on finishing the necessary material and did not deviate from the necessary material. This type of classroom teaching does not allow for discussions or conversations, which provide females an environment that allows them to thrive (Margolis & et al., 2000). In the classroom the students focused mainly on their own notes and making sure that they understood the material. According to the observation notes, students except the females in the EGR class provided limited support to each other. In the ITN course, limited peer support

became a consistent observation and the instructor limited the ability and times for peers to provide support to each other during the class. The engineering course provided slightly more opportunities for interaction but the instructor provided a lecturing environment with limited to no group work during class time. Based on the research discussed previously, negative types of environments are harmful associated with female success and satisfaction with the course (Seymour & Hewitt, 1997). Ultimately these types of environment may prevent females feeling as though they have the ability to succeed in the classroom.

In the interviews females stated that the use of real world examples and working on real life problems provided them with the greatest area of increased understanding. In the horticulture class, the females enjoyed the interaction and the participation with real world examples. The environment created a more conducive space for female learning. The teaching methods used in the HRT class helped students associate the class work to the on the job experiences that may occur throughout there career.

Retention

The female retention rate provides in these three classes gives a short glimpse into the implications for microaggressions amongst these courses. The study wanted to understand if the microaggressions ultimately had an effect on retention rate of the students. Although the research did not collect formal data on retention rates for the programs, the researcher asked each female about their future in the program at the end of each interview. All students stated that they planned to stay within the program at least

through the end of their associates degree and a few mentioned going on to a bachelors or masters degree.

A previous article stated that females in STEM generally do not retain as well as females in non-stem programs (Glass, Sassler, Levitte, & Michelmore, 2013). Additionally, female isolation, which existed in all the classrooms, reduces the probability of retention (Strenta & et al., 1994). However, the current study contradicts the previous understanding of female retention in these non-traditional programs for females. Since the data does not provide a representative population for the programs, the section focuses on why these particular females persisted thru the current semester.

The retention rate of the female students in the classroom resulted from several factors that outweighed any microaggressions in the classroom. The female students had already completed a significant number of classes in the program already and had established themselves in the program. All three courses were mid-level to upper-level courses for the programs and students had to complete previous courses to enroll. As mentioned in previous research, females establish some resistance to the microaggressive behaviors when enrolled and continue to enroll in non-traditional programs (Lester, 2010). The females in these three particular courses had the necessary support and resistance to continue through the program. The female in the ITN course had several family members that work in a similar field, and thus increasing the probability of her continuation (Zeldin, Britner, Paiares, 2008). Females in the EGR course had similar support but from the fellow peers in the classroom and the instructor as a support and a symbol that females progress through. Having females continue despite the impediments

represents a positive sign, but the presence of the microaggressions still presents a pertinent and current issue.

Future Research

Based on the information gathered, the study represents only a small piece of the potential future research on the topic of microaggression in CTE programs at community colleges. In future studies, gathering data from a larger set of classrooms provides a better opportunity to gain a larger breadth of knowledge about CTE courses and the presence of microaggressions within them. Gathering a more representative population in non-traditional female programs may provide more sound evidence of the existence of microaggression in the classroom. Additionally, future research should focus on entry-level classes in the program. The entry-level course could provide a better understanding of the experiences of newer students. Entry-level courses provide the framework for students about the future of the course-work and provide a better picture about who continues in the program. Additionally, future research should utilize a survey form to understand the experiences of the female students compared to the male students in the classroom. This may help provide an anonymous way to talk about in-class problems. The Racial Microaggressoions Scale (RMS) is a useful tool when developing a potential survey associated with gender microaggressions (Nadal, 2011). The survey may provide the opportunity to gather information from a larger set of students and allow for more quantitative analysis. Finally, this study focused on male dominated classrooms, but future studies may want to observe female dominated courses and the experiences of males in these classrooms. This provides an opportunity to understand microaggressions

in a different setting and may result in the microaggressions occurring in different ways than for male-dominated programs.

Implications for Microaggressions

The study expands the understanding of gender microaggressions in higher education settings, particularly community colleges. Previous research focused particularly on the racial microaggressive experiences of students in higher education institutes (Borum & Walker, 2012; Harwood, et al., 2012; Nadal, 2011; Ong, et al., 2013; Pittman, 2012). The research that covers gender microaggressions discusses general themes around the issue and makes connections to some research done on racial microaggressions (Nadal, 2013). This research helps add to the understanding around how females may experience microaggressions. Some of the concepts that appear in this study relate back to the original study on microaggressions. The original study on microaggressions found commercial images and videos favored showing Whites over Blacks in dominant positions, and in this study, the researcher has found that, in certain instances, females experience differential treatment as compared to their male counterparts. The study reveals the nature of gender microaggressions. Gender microaggressions appear in this study more as non-verbal actions as opposed to verbal or environmental microaggressions. Previous studies discuss racial microaggressions and their verbal appearance in different places on the college campus (Boysen, 2012a; Boysen, 2012b; Harwood, et al., 2012). The current study helps to provide an understanding for what non-verbal microaggressions look like in a classroom.

Additionally the study helps expand the research on microaggressions to a wider variety of institutions. Much of the current research involves microaggressions at four-year universities, and this study helps to provide a glimpse into the presence of microaggressions at community colleges (Borum and Walker, 2012; Boysen, 2012b; Harwood, Huntt, Mendenhall, and Lewis, 2012; Nadal, 2013; Owen, Tao, and Rodolfa, 2010). The study helps provide a beginning understanding of how microaggressions appear in the classroom of a community college for female students.

The study broadens the microaggression and gender research from focusing on STEM programs to looking at non-traditional female CTE programs at community colleges. Few studies have looked into females in CTE programs and none have looked at the appearance or presence of microaggressions for females in CTE programs (Maguire, Starobin, Laanan, & Friedel, 2012). The study helps to provide more information on the female experience in non-traditional CTE programs and elevates the understanding of barriers that exist in these classrooms that had not previously received attention in the literature. Future research should look into expanding the understanding of the female experience in the non-traditional CTE programs for females at community colleges and the effect microaggressions have on the female students.

Implications for practice

There are several implications for CTE instructors and CTE students at community colleges. The research helped provide insight on the occurrences of three different classes and the ways that microaggressions existed in each. An important finding from the observations relates to the presence of female isolation in the classroom.

Instructors need to become more aware of the isolation and play a role in alleviating this from the classroom by encouraging more collaboration opportunities between students. Additionally, females experienced non-verbal microaggressions throughout the classes and a masculine-subculture that may have negatively affected their experience. Providing faculty with educational programs on microaggressions and the impact that these behaviors have on students allows faculty to take control of the situation and intervene if necessary. This also would allow instructors to become more aware of their own actions and the effects they have on students in the classroom. As a result, instructors should work on making classroom environments that are friendlier to female students and provide them with opportunities to interact and collaborate with instructors and peers. Most importantly, creating a safe and inviting environment for females in the non-traditional Career and Technical Education fields may provide increased enrollment and retention in these growing areas.

APPENDICIES

Appendix A: Table of Virginia Community College System

Table 3**: E16 SCHEV Research Report; Enrollment by Race-Ethnicity, Gender and Program Detail** (2012-2013 & 2013-2014)

Program	Year	Median Salary (DOE 2012) in thousands	Percent Female
Airframe Mechanics and Aircraft Maintenance	2012-2013	51	2
Airframe Mechanics and Aircraft Maintenance	2013-2014	51	5
Civil Engineering	2012-2013	76	8
Civil Engineering	2013-2014	76	14
Computer Science	2012-2013	106	14
Computer Science	2013-2014	106	16
Corrections	2012-2013	34	0
Corrections	2013-2014	34	0
Diesel Mechanics Technology	2012-2013	40	0
Diesel Mechanics Technology	2013-2014	40	0
Electrical, Electronic and Communications Engineering	2012-2013	87	8
Electrical, Electronic	2013-2014	87	9

and Communications Engineering			
Surveying Engineer	2012-2013	51	25
Surveying Engineer	2013-2014	51	N/A
Industrial technology/ technician	2012-2013	50	8
Industrial technology/ technician	2013-2014	50	11
Mechanical Engineer	2012-2013	80	7
Mechanical Engineer	2013-2014	80	8
HVAC	2012-2013	41	1
HVAC	2013-2014	41	2
Welding	2012-2013	39	5
Welding	2013-2014	39	7
Auto body repair/ automobile technician and technology	2012-2013	40	5
Auto body repair/ automobile technician and technology	2013-2014	40	6
Construction trades	2012-2013	56-85	13
Construction trades	2013-2014	56-85	15
CAD/CADD Drafting and or Design Technology	2012-2013	47	18
CAD/CADD Drafting and or Design Technology	2013-2014	47	20
Respiratory Care	2012-2013	55	75
Respiratory Care	2013-2014	55	76
Psychiatric Technician	2012-2013	24	75
Psychiatric Technician	2013-2014	24	N/A
Surgical Technology	2012-2013	41	75
Surgical Technology	2013-2014	41	80
Education	2012-2013	55	76
Education	2013-2014	55	80
Mental and Social	2012-2013	87	83

Health Services			
Mental and Social Health Services	2013-2014	87	86
Clinical Technician	2012-2013	36	78
Clinical Technician	2013-2014	36	N/A
Dental Technician	2012-2013	34	90
Dental Technician	2013-2014	34	91
Interior Design	2012-2013	46	90
Interior Design	2013-2014	46	94
Registered Nurse	2012-2013	63	89
Registered Nurse	2013-2014	63	90
Massage Therapy	2012-2013	35	82
Massage Therapy	2013-2014	35	90
Legal Assistant	2012-2013	45	83
Legal Assistant	2013-2014	45	84
Accounting and Related Services	2012-2013	68	82
Accounting and Related Services	2013-2014	68	87
Occupational Therapist	2012-2013	48	86
Occupational Therapist	2013-2014	48	89
Secretarial Services	2012-2013	33	93
Secretarial Services	2013-2014	33	94
Teacher Assistant	2012-2013	22	97
Teacher Assistant	2013-2014	22	98
Dental Hygienist	2012-2013	81	97
Dental Hygienist	2013-2014	81	98

Source: SCHEV Research Report and VDOE Snapshots report

Appendix B: Summary of Microaggressions

Table 4: Summary of Microaggressions

Methods and forms	Literature	Examples
Microassaults	Attacks meant to harm victims (King, et al., 2011; Pittman, 2012; Sue, 2007)	Using sexist language or using imagery that is offensive like nude posters of women in the workplace
Microinvalidations	Behavior that demean the psychological thoughts and feelings etc. of their targets (King, et al., 2011; Pittman, 2012; Sue, 2007)	Saying a women is overreacting when she claims discrimination or assuming a women is not from this country because she has a different accent and needs a visa or green card
Microinsults	Behaviors that are rude and insensitive to an individuals identity, typically unconscious or unintentional (group) (King, et al., 2011; Pittman, 2012; Sue, 2007)	Assuming that a woman is a stay at home mom (indicating she isn't the "bread winner")

Appendix C: Comparison of Microaggressions and STEM Literature

Table 5: Examples of Classroom Microaggressions

Methods and forms	STEM/ CTE Literature
Microassaults	Interaction with teachers; use of language and imagery exclusive to men and masculinity
Microinvalidations	Pedagogy disconnected from female student's reality; lack of acknowledgement of different learning styles; "invisible barrier" between instructor and female students;
Microinsults	Jokes and/or gender offensive language used in the classroom by peers and instructors

Appendix D: Demographic Questionnaire

Please help us understand your distinctive background. Circle the category that best describes you. Please feel free to add a category if a more appropriate description has not been included on this form.

1. What is your gender?
a. Female
b. Male
c. Transgendered

2. What is your current class standing?
a. First-year
b. Sophomore/ Second-year
c. Junior / Third-year
d. Senior / Fourth-year
e. Other:_____

3. Where do you live?
a. On-campus residence hall
b. Off campus housing
c. With family (a commuter)

4. Which of the following descriptions best describes your race/ethnicity? (circle all that apply)
a. Black/African American
b. Asian/Pacific Islander/Asian American
c. Latino/Latina/Hispanic
d. Native American/American Indian/Alaskan Native
e. White/Caucasian
f. Multiracial or multiethnic (please specify): _____
g. Other (please specify): _____

5. Please indicate your sexual orientation.
a. Gay or Lesbian
b. Bisexual
c. Heterosexual

6. Do you have any physical disability? If so, please describe here:

7. Do you work?
a. Yes
b. No

If no, skip to question 10.
8. If yes, how many hours a week do you work? _____
9. Where do you work?
a. On campus
b. Off campus
c. Both on and off campus

10. Please indicate your highest level of education completed.

High school or less	__
Some college	__
Associate's degree	__
Bachelor's degree	__
Master's degree	__
Doctorate or professional degree (JD, MD, PhD)	__

11. Please indicate the highest level of education completed by parents or guardians. Check one level for each column.

	Father or Male guardian	Mother or Female Guardian
Don't know	__	__
High school or less	__	__
Some college	__	__
Associate's degree	__	__
Bachelor's degree	__	__
Master's degree	__	__
Doctorate or professional degree (JD, MD, PhD)	__	__

12. Do you have older siblings who have attended or completed college?
a. Yes
b. No

13. Please indicate your citizenship and/or generation status.

a. Your grandparents, parents, and you were born in the U.S.
b. You and your parents were born in the U.S.
c. You were born in the U.S., but at least one of your parents was not.
d. You are a foreign born, naturalized citizen.
e. You are a foreign born, resident alien/permanent resident.
f. You are on a student visa.

14. What was your first semester in college? _____

15. How many colleges have you attended? _____ Which ones?_____

16. How many years spent in a CTE program? _____

17. What is your age? _____

Appendix E: Interview Protocols

1. What type of experience have you encountered with CTE courses?
2. How do those experiences compare to other classroom environments?
3. Describe the classroom climate in your CTE courses?
4. How have your in class experiences effected your performance in the classroom?
5. Tell me about times when you feel comfortable in the class, uncomfortable? Describe what prompts those feelings?
6. Have you ever felt uncomfortable, insulted, or disrespected by a comment made in the classroom? Describe that experience.
7. Do you think about where you sit in the classroom? What might that be about?
8. Tell me a story about interactions you have with peers.
9. Do you interact with instructors outside of class? Can you tell me what that was like for you?
10. Are you satisfied with the interaction you have with the instructors? Why or why not?
11. Tell me about how the professor treats you in class. How do you feel about that?
12. Tell me about the different spaces in the classroom, tell me how you feel in them.
13. Do issues of gender arise in the classroom setting? How do those conversation go? How do you feel when these discussions happen?
14. What have your experiences been like with your classmates?
15. Are real life examples used for class? How do you relate to those?
16. Do you have concerns about the class? Have you addressed those? If so, how do those situations go, if not, how would you address those concerns?
17. What is your favorite spot on campus? Least favorite? Where do you feel most welcomed, least?
18. What is the likelihood that you will continue pursuing your degree or certificate in this particular program?

Appendix F: Observation Protocol

Observer/Interviewer:_____ School Name:_____

Observation date: _____ Time Start: _____ End: _____

Teacher Ethnicity: _____ Teacher Gender: Male___Female__

Course Title:_____

Students: Number of Males _____ Number of Females _____

Classroom Race/Ethnicity: % Minorities (approximate) _____

Please give a brief description of the class observed, including:
• the classroom setting in which the lesson took place (space, seating arrangements, environment and personalization, etc.),
• any changes to classroom setting (movement of desks during group work)
• any unusual context of the lesson (interruptions, etc.)

Use diagrams if they seem appropriate.

Classroom Climate	Observed (Note Yes or No)	Detailed Description
Textbooks and supplemental materials depict women and girls in a wide range of activities; provide accurate information about women's contributions to CTE; and encourage girls to seek out a wide range of careers in the subject area.		
Females and minority groups are represented in non-stereotypical ways in the visuals, bulletin boards, and audiovisuals used in class.		
Females are depicted as active participants in events, not just shown in the background.		
Males are shown in non-stereotypical ways; shown in nurturing and helping roles; shown being sensitive and tender.		
Textbooks and supplemental materials conform to non-biased language guidelines.		
When displaying students work in the classroom, girls and boys are equally represented.		
Classroom seating plan allow equal access to teacher from boys and girls.		
When working in groups or doing labs, leadership roles are equally distributed between female and male students.		

When looking across the classroom at random times during a class period, male and female students are working together to complete a task in which the female students are "doing" just as much as the male students.
Rules apply the same for all students, even my biggest trouble makers, and punishments and rewards are applied consistently.
Questions were managed from male and female students in a similar manner; questions were responded to and taken seriously
Male and female students received criticism in a similar manner
Interruptions were similar for male and female students by peers and the instructor
Language used by peers and instructor was gender neutral and did not reflect gender bias

General Observations (Describe in detail your impressions of the classroom with attention to microaggressions):

Appendix G: CTE Programs

Table 6: CTE programs

Hospitality and Tourism
Science, Technology, Engineering, and Mathematics
Law, Public Safety, and Security
Agriculture, Food and Natural Resources
Human Services
Transportation, Distribution and Logistics
Finance
Architecture and Construction
Education and Training
Arts, A/V Technology, and Communications

Health Science
Government, and Public Administration
Manufacturing
Business, Management, and Administration
Marketing, Sales, and Service
Information Technology

APPENDIX H

Table 7: Gender Microaggression Themes

Nadal's (2013)		Current Study	
Theme	Microaggression	Theme	Microaggression
Sexual objectification	Microassault	Non-verbal Microaggressions	Microinsult and Microinvalidations
Assumption of inferiority	Microinsult	Isolation	Microinvalidation
Assumption of traditional gender roles	Microinsult	Teaching Style	Not a microaggression
Use of sexist language	Microassault	Retention	Not a microaggression
Denial of individual sexism	Microinvalidations	Classroom Activities (ITN, HRT)	Microinvalidation
Invisibility	Microinvalidations	Masculine Sub-culture	Microinvalidation
Denial of the reality of sexism	Microinvalidations		
Environmental gender microaggressions	Microinvalidations		

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BIOGRAPHY

Brice Struthers graduated from Sanford Prep School in Hockessin, Delaware, in 2008. He received a Bachelor of Science from James Madison University in 2012. He was employed at George Mason University for two years and received a Master of Arts in Interdisciplinary Studies with a concentration in Higher Education from George Mason University in 2014.