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Stereotype Threat And Its Effect On Christian Women In Secular Higher Education Administration

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STEREOTYPE THREAT AND ITS EFFECT ON CHRISTIAN WOMEN IN SECULAR HIGHER EDUCATION ADMINISTRATION

by

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DEDICATION

I am dedicating this dissertation to God, who has been my guide, comfort, salvation, and my life. I have followed Him all the days of my life, and I thank Him for giving me the strength to complete this endeavor.

I would also like to dedicate this work to my children, Matthew and Faith Morgan; my father, Jack Gentry; my sister, Carol Bracht; and my mother, Trudy Gentry, who passed before she could see me complete this endeavor. They have been there for me from the very beginning, rooting me on and encouraging me when I was discouraged. I am so thankful they are a part of my life and I thank them for putting up with me through all the hours of work that went into this project. After God, they give me reason for being, and I am so blessed they are my family.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

I am a devout Christian woman who aspires to a leadership position in higher education in a secular institution. As such, I sometimes feel minoritized because of the various social groups of which I am a part. For example, in my first course as a doctoral student, the conversation would often turn to politics or ethics. I invariably felt uncomfortable during those conversations because my beliefs are not in line with what appeared to be the views of the vast majority of my classmates. During these conversations, I would normally remain quiet, waiting for the class session to begin and the conversation to turn to other topics. After a while, I could no longer remain quiet. I had to state my beliefs to the class in order to let them know that their opinion was not the only one held in the class. I needed them to know that it was inappropriate to assume their opinion was the only one. It was very difficult to state my beliefs publicly, and although my classmates lauded me for being brave enough to share my contrary viewpoint, to my recollection no one ever said they agreed with my perspective. To this day I feel alone in my cohort regarding my stands on marriage, gender, and politics, although I am comforted that there are other Christians in the cohort.

I also work within a department in the institution in which the professoriate is almost completely male. Lecturers are more equally represented by both sexes; however, the staff, of which I am a part, is completely female. Although I am well-liked and have a good reputation within the department, I have been told on several occasions that I do not command the same level of respect as professors in my department. If that is true, I am sure it is mostly due to the fact that I am staff, which is an issue in and of itself; but there is always the thought in the back of my mind that it might be due to my gender, although no one has ever implied or stated that in any way. Whatever the reason, it initially caused me a good deal of anxiety when I was put in positions of leadership over professors. Over time, I have overcome much of this anxiety, but it still rears its

ugly head at times. This feeling may be unfounded, but it still occasionally has an effect on my performance.

I also have a master's degree in mathematics. I have chosen not to pursue a doctorate in the field because I do not enjoy the theoretical side of mathematics. In fact, I decided to change from a Master of Science in Mathematics to a Master of Arts in Applied Mathematics for that reason. Although I am sure of my decision not to pursue a Doctorate in Mathematics, I sometimes question why. Perhaps, it is because I don't believe I am intelligent enough to succeed; perhaps it is because I don't want to be one of the few women in the field again, as I was when I was studying in undergraduate school and as it is in my institution's professoriate. Perhaps if I were a man, I would be up for the challenge and be willing to continue.

As a woman pursuing a career in leadership, I will probably face being in the minority again, but I feel I am ready for that challenge. However, I still occasionally wonder if I have the skills, intelligence, and emotional fortitude to be successful in the role. I feel the pressure that comes from stereotypes such as women are not intelligent enough to be in leadership, women don't have the right characteristics to be leaders, or women are too emotional to be leaders. It has caused me to question myself when in stressful situations or when beginning to work in new leadership situations.

Finally, as a devout Christian woman, these feelings compound in what at times feels like an insurmountable mountain of apprehension and anxiety. Not only do I have feelings of apprehension regarding my conservative viewpoints in politics and morality, but I also am part of the marginalized gender in society. However, there is even another facet to this complex combination of social groups. As a devout fundamentalist Christian, I believe in a more literal translation of the Bible. In I Timothy 2:11-12, New International Version, the apostle Paul states

"A woman should learn in quietness and full submission. I do not permit a woman to teach or to have authority over a man; she must be silent," and in 1 Corinthians 14:33-35, Paul states "Women should remain silent in the churches. They are not allowed to speak, but must be in submission, as the law says. If they want to inquire about something, they should ask their own husbands at home; for it is disgraceful for a woman to speak in the church." Because of these scriptures and others, many people believe that Christian women are not allowed to be in leadership at all, whether that is what the scripture is really saying or not. I myself used to wonder whether it was appropriate for me to speak up during a church Bible class or worship. I have also struggled, and still do, with whether or not I should be in leadership over men in a church setting. In fact, I would never preach to my congregation or be an elder.

Many believe in this same way concerning women in the church, citing these scriptures as evidence. The matter is often debated, and current beliefs are turning away from the traditional view that seems to be supported by these scriptures. If these scriptures do apply in church, do they also apply to non-church situations? What does all this mean for devout, female Christians in higher education, especially those that aspire to leadership? Are these individuals affected by these views of themselves and/or the views of those with whom they interact? Does the fact that they are a part of these social groups have a more profound effect on their views of themselves and their ability to be successful in leadership? To understand all this, an examination of the source of the issues was needed.

Definition of Stereotypes

According to Kanahara (2006, p. 311), a stereotype is defined as "a belief about a group of individuals." These stereotypes can be both positive and negative, and each social group has various beliefs which are generally held regarding them. Examples of negative stereotypes include,

Jews are spendthrifts, women can't do math, white men can't do sports, Americans are self-involved, Hispanics are ill-tempered, Asian women are shy, gay men are effeminate, and so forth. Examples of what could be considered positive stereotypes include: African Americans are good at sports, Asians are intelligent and hard-working, Italians and the French make good lovers, and Americans are friendly.

Women in Leadership: Stereotypes and Barriers

Just as any other social group, women do not escape the stereotyping of their social group. For example, women are thought to have communal traits while men are thought to have agentic characteristics (Kray, Thompson, & Galinsky, 2001).

> Communal characteristics, which are ascribed more strongly to women, describe primarily a concern with the welfare of other people—for example, affectionate, helpful, kind, sympathetic, interpersonally sensitive, nurturing, and gentle. In contrast, agentic characteristics, which are ascribed more strongly to men, describe primarily an assertive, controlling, and confident tendency—for example, aggressive, ambitious, dominant, forceful, independent, self-sufficient, self-confident, and prone to act as a leader. (Eagly & Karau, 2002, p. 574)

Many of the communal stereotypes listed above are considered positive. However, in addition to those, women are considered to be quieter than men, submissive, more emotional, weak, indecisive, they need saving, they need to be taken care of, they shouldn't be in charge, they are less competitive, and they are not as good at negotiation (Newport, 2001; Koenig, Eagly, Mitchell, & Ristikari, 2011; Rudman & Phelan, 2008; Davies, Spencer & Steele, 2005; Kray, Thompson, & Galinsky, 2001).

Barriers

Women are drastically underrepresented at the highest levels of higher education administration. According to *Pipelines, pathways, and institutional leadership: An update on the status of women in higher education* (Johnson, 2017)*, "*While the number of women presidents has

increased since 1986, as of 2016, women only hold 30 percent of presidencies across all institutions of higher education" (p. 11). This situation is not limited to the position of president. "The percentage of women serving in a CAO position has declined from 2008 to 2013 in public doctoral degree-granting institutions" (p. 12), decreasing from 33.3% in 2008 to 26.1% in 2013 (p. 23). In addition, there are twice as many men on governing boards as women (p. 13). This seems to signify a lack of vision and desire for diversity on the part of institutions, which is unfortunate since institutions of higher education are historically thought to be places in which forward-thinking and innovation are prevalent. As a result, institutions are lacking representation from the gender that comprises half of society – 49.5% according to The World Bank (Population, Female, % of Total, 2017) – and more than half their student population – 56.7% in 2017 (U.S. Department of Education, NCES 303.10, 2018). This misrepresentation could be deleterious to the efforts of institutions to provide resources, programs, mentoring, and inspiration to so many of their students. It can also have negative effects on the morale and career aspirations of their female faculty and staff.

According to the 2018 AAUP-AFT Local 6075 Salary Report for one of the institutions that are the subject of this research, there is presently a male president and provost, and of the 10 highest salaries in the executive ranks, only 3 are female. Looking further, of the top 100 salaries, only 26% are women and of the top 500, only 32% are women (2018). This is in sharp contrast to the fact that 55% of all employees at that institution are female. What effect does this have on the female population of the institution? How does it affect both upward mobility and morale for women?

Eagly and Karau (2002) presented the role congruity theory of prejudice against female leaders. This theory is an extension of social role theory which Eagly first posited in 1987. Role

congruity theory states that there are disadvantages caused by prejudice against female leaders. The first is that women are perceived to have less leadership ability. The second is that when they do possess that ability it is looked on less favorably than in men because it is at odds with the stereotypes of women and leaders. The three consequences of these disadvantages, according to the theory, are "(a) less favorable attitudes toward female leaders, (b) greater difficulty for women in attaining leadership roles, and (c) greater difficulty for women in being recognized as effective in these roles. (p. 589).

When one thinks of the characteristics that a leader should have, one thinks they should be assertive, independent, courageous, intelligent, and masterful. These agentic traits do not coincide with the typical stereotypes held about women (Litmanovitz, 2010; Rudman & Phelan, 2008), so this creates a barrier for women who would like to progress in leadership. In fact, "The same leadership behaviors, when performed by a woman, may be viewed less favorably than they are when performed by a man" (Eagly, Makhijani & Klonsky, 1992).

Therefore, when they are in leadership positions and act according to typical agentic traits – assertiveness, independence, courageousness, masterfulness, etc., it appears that they are acting out of character or against typical stereotypes. This can then create negative attitudes toward them and in turn affect their chances of promotion and higher leadership opportunities (Schock, Gruber, Scherndl & Ortner, 2017). Eagly and Karau (2002) predicted from their role congruity theory that "achieving leadership is more difficult for women than men, because of the common perception [stereotype] that women have less leadership ability and (often) the preference that women not exhibit this ability and instead engage in communal, supportive behavior" (Eagly & Karau, 2002, p. 581). Turner, Norwood, and Noe stated the following regarding women aspiring to leadership.

> The challenge women face is a double helix that is created by the discourses of impossibility and femininity, each twisting around and reinforcing the other. The

> resulting message women are getting is this: It is very unlikely that [women] will be successful in higher education administration, but to be successful requires that you fundamentally work to develop specific skills and show others that you have them—yet as a woman you probably should not do so, lest you face the consequences of violating feminine expectations. These contradictions can create a frustrating conundrum for women who desire to lead in the academy. (2013, p. 27)

This creates a barrier to advancement when women begin to believe that they have such a difficult path to tread.

These stereotypes can affect how women are treated, but they can also be self-fulfilling prophecies as women can apply them to themselves. Even if they do not necessarily tend toward that stereotype, they can struggle with the thought that they might reflect negatively on their gender if they fulfill a negative stereotype. This phenomenon is called stereotype threat and will be discussed in detail in this dissertation (Steele, 2010).

Other barriers for women, to name a few, include the following; lack of career advancement opportunities, gender pay gap, lack of role models, and tokenism (Kalaitzi, Czabanowska, Fowler-Davis, & Brand, 2017). They are also affected by family-career conflicts or work-life balance (Kalaitzi, Czabanowska, Fowler-Davis, & Brand, 2017). Women still often bear the brunt of taking care of the family at home. Having this additional burden creates additional pressure on them during the workday. Women also suffer from gender discrimination (Kalaitzi, Czabanowska, Fowler-Davis, & Brand, 2017). Expectations of different genders are ingrained in the attitudes and perspectives of all members of society. These perceptions affect how genders are treated, and unfortunately, the results are and have been, that women are considered inferior and treated accordingly.

Definitions, Statistics, and Stereotypes about Christians in Leadership

Christians comprise 70.6% of the population of the United States (Religious Landscape Survey, 2014). This country was founded by men of the Christian faith, and its precepts are based on Christian tenets. Because of this, people may believe that Christians do not face stereotype threat. However, any social group can face the effects of stereotype threat, even if it is the majority group (Steele, 2010).

Stereotypes

For the most part, stereotypes of Christians have not been the topic of scholarly research; however, they do exist. Some of them include; they are concerned for others (Burris & Jackson, 2000), they are nice, not scientifically intelligent (Rios, Cheng, Totten, & Shariff, 2015), conservative (McDermott, 2009), subservient (Hall, 2014), hypocritical, judgmental and close-minded (Speegle, 2014; Chaplin, 2016; Bearden, 2016). Besides stereotypes of women in leadership, some of these stereotypes about Christians are also in opposition to the before discussed traditional idea of an effective leader. How does this affect Christians as they attempt to progress toward leadership positions?

Statistics

In 2006, Christianity Today and Zondervan Publishers commissioned Knowledge Networks to survey over 1000 self-identified Christians about the kind of Christian they are. In the survey, they asked Christians about their religious commitment, church attendance, leadership, and so forth. Using the results of the survey they categorized the participants into 5 groups - Active, Professing, Liturgical, Private, and Cultural Christians (Lee, 2007). In Appendix A, Table 14, are descriptions of the various groups and the percent of the survey respondents who fit those characteristics. They found that 19% of the Christians in their survey were active Christians. They

are characterized by the following traits: they believe salvation comes through Jesus Christ, are committed churchgoers, are Bible readers, accept leadership positions in the church, invest in personal faith development through the church, and feel obligated to share their faith.

In 2014, the Pew Research Center conducted "telephone interviews with more than 35,000 Americans from all 50 states" (About the Religious Landscape Study, n.d.). They found that 70.6% of those they interviewed considered themselves Christians. If it is assumed that 19% of them self-define as active Christians, as the 2006 study found, then 13.4% of Americans are active Christians. Using that same logic, of the 4298 institutions in the United States (U.S. Department of Education, NCES, 317.40, 2018), 576 of their presidents are active Christians. If applied to women in presidencies, 173 of those women are active Christians. This is 4% of college and university presidents. However, if there was equal representation of women in the presidencies then a more appropriate representation of active Christian women would be 288, or 6.7%. This is assuming that Christians are just as likely to take on positions of leadership in higher education as other social groups. Therefore, using these assumptions, there is also underrepresentation of active Christian women in higher education administration. This misrepresentation needs to be corrected in order to appropriately represent this social group.

Overview of Stereotype Threat and its Research

Stereotype threat is a relatively new phenomenon, only having been defined and researched for the last 23 years. Steele and Aronson coined the phrase in their paper, *Stereotype Threat and the Intellectual Test Performance of African Americans* (1995). They stated that stereotype threat is "being at risk of confirming, as self-characteristic, a negative stereotype about one's group" (p. 797). Therefore, stereotype threat could occur when a person is given a task that, if they fail or do poorly in, can reflect negatively on their identity group.

Stereotype threat is pervasive in situations wherever stereotypes exist. African Americans can feel it during standardized testing, White men can struggle with it when they feel their natural athletic ability is being tested, women feel it when they are asked to do difficult mathematics, older people can experience it when being tested on memory, and women can suffer from it when in positions of leadership. Hundreds of articles and experiments have examined this phenomenon, and virtually all have confirmed its deleterious effects. Although it has been shown to have a tangible effect on those who experience it, most do not realize that it is happening, reporting that they feel no more anxiety than in any other situation. However, the effects can be seen in lower performance when attempting difficult tasks. When subjects of experiments are exposed to stereotype threat through varying methods, differences in results on exams or other tasks are evident. When those stereotypes are either removed or negated, performance tends to improve (Steele, 2010).

Stereotype threat does not affect everyone in a social group in the same manner. Several factors need to be in place for the effect to be significant; "(a) the task an individual is performing is relevant to the stereotype about an individual's group, (b) the task is challenging, (c) the individual is performing in a domain with which he or she identifies, and (d) the context in which the task is being performed is likely to reinforce the stereotype" (Block, Koch, Liberman, Merriweather, & Roberson, 2011, p. 572; Roberson & Kulik, 2007). The more a person identifies with a particular social group, the more they can be affected by stereotype threat.

Over 300 studies have been done on stereotype threat since its inception in 1995. The theory has become one of the most researched phenomena in social psychology (Schmader, Johns, & Forbes, 2008). It has reached into numerous areas of science; including psychology, sociology,

medicine, and biology. It has also brought about work in areas such as stereotype boost, stereotype lift, stereotype threat removal, its psychological mediators, and more.

A meta-analysis, done by Nguyen & Ryan (2008), investigated 76 studies done on the phenomenon and found that the most prevalent form is situational stereotype threat. That means those that suffer from it only do so in particular situations. The prevailing "situation" in most studies appears to be when doing a difficult task that is an evaluation of ability. Another study done by Pennington, Heim, Levy, and Larkin, examined 45 experiments to investigate the mediators for the phenomenon. The researchers stated that "On the whole, the results of the current review indicate that experiences of stereotype threat may increase individuals' feelings of anxiety, negative thinking, and mind-wandering which deplete the working memory resources required for successful task execution" (2016, p. 12).

Christian Women and Leadership

Women who are also Christians could conceivably be thought of in light of both sets of stereotypes. Could the threat of confirming stereotypes in both social groups compound in given situations and create a more negative effect on Christian women and leadership? This research explores this issue, specifically for Christian women in higher education. This problem has multiple layers. First, are *women* affected negatively by stereotype threat? Second, are *Christians* negatively affected by stereotype threat? And finally, are *Christian women* affected more profoundly by stereotype threat than either of these social groups alone.

Negative Effects of Stereotype Threat

Stereotype threat has a number of effects on those who suffer from it. These include psychological, sociological, and physical responses to this threat and its removal. Some of those effects include; stress related to the pressure to not confirm negative stereotypes, preoccupation

and distraction, disengagement, over-efforting, working memory taxation, and lower performance on difficult tasks (Steele & Aronson, 1995; Steele 1997; Aronson et al, 1999; Lamont, Swift, & Abrams, 2015; Hoyt & Murphy, 2016; Burmester, 2017). "A mind trying to defeat a stereotype leaves little mental capacity free for anything else [they are] doing" (Steele, 2010, p. 123), so those under this type of threat are constantly multi-tasking between combatting the stereotype perception and completing the task at hand.

Hoyt and Murphy state, "The pernicious effects of gender stereotype-based threat can result in performance decrements that can accumulate over time and result in disengagement and decreased leadership aspirations" (2016, p. 388). They also state in the same article, that

> In sum, female leaders can experience increased threat when attempting leadership in industries and organizations where women are scarce, in contexts where gender stereotypes are made salient through the media or physical environments, or in organizational cultures extolling the virtues of competition or innate brilliance for success. (Hoyt & Murphy, 2016, p. 390)

Therefore, gender-based stereotype threat can come from multiple catalysts.

Research Overview

The following is an overview of the research conducted for this study. It includes the purpose statement and research design, the theories behind the research, and a summary of the study.

Purpose Statement

The purpose of this experimental survey study was to test the theory that opportunities for the advancement of Christian women in higher education at a secular university are negatively affected by stereotype threat. The specific stereotype being addressed was the thought that women, and perhaps especially Christian women, do not make good leaders. The experiment began by attempting to activate stereotype threat in four groups of female subjects by simply asking either

their gender (group 1), Christian affiliation (group 2), both (group 3) or neither (group 4), before completing a survey that asked them to rate their leadership skills, how they believe others would rate their leadership skills, and their aspirations for career advancement. Specifically, it is postulated that when Christian women are asked both their gender AND their Christian affiliation the effect will be compounded, and they will rate themselves lowest. The independent variable in this experiment was activating stereotype threat, while the dependent variable was their personal opinion of their leadership skills, what they believe the opinion of others is regarding their leadership skills, and their aspirations for career advancement.

Research Questions

The following are the research questions addressed in this study.

Central question. What effect does stereotype threat have on perceptions of leadership in Christian women in higher education?

Sub-questions with hypotheses. The following sub-questions have been organized by specific area.

Rating their leadership skills questions.

1. What is the effect on Christian women when asked their gender, Christian affiliation, or both, before being asked to rate their leadership skills?

2. What is the effect of asking Christian women their gender before being asked to rate their leadership skills?

3. What is the effect of asking Christian women their Christian affiliation before being asked to rate their leadership skills?

4. What is the effect of asking Christian women their gender AND Christian affiliation before being asked to rate their leadership skills?

How others would rate their leadership skills questions.

5. What is the effect on Christian women when asked their gender, Christianity, or both, before being asked what they believe others think about their leadership skills?

6. What is the effect of asking Christian women their gender before being asked what they believe others think about their leadership skills?

7. What is the effect of asking Christian women their Christian affiliation before being asked what they believe others think about their leadership skills?

8. What is the effect of asking Christian women their gender AND Christian affiliation before being asked what they believe others think about their leadership skills?

Career aspirations questions.

9. What is the effect on Christian women when asked their gender, Christian affiliation, or both, before being asked to rate their desire to advance in their careers?

10. What is the effect of asking Christian women their gender before being asked to rate their desire to advance in their careers?

11. What is the effect of asking Christian women their Christian affiliation before being asked to rate their desire to advance in their careers?

12. What is the effect of asking Christian women their gender AND Christian affiliation before being asked to rate their desire to advance in their careers?

Theories

All research should be couched in theory. Even when one doesn't realize it, a researcher is using theory regarding their view of the world, their work and their methodologies. There are theories about every phenomenon and social construct in society. They vary widely and there is sometimes no general consensus as to which is the "right" one for a given situation. However,

when completing research using widely accepted approaches and theories, it can lend credence to the results and give a solid philosophical basis for the work. The following is an explanation of the theories that frame the research done in this study and how they affected the work.

Stereotype Threat Theory

The overarching theory guiding this study was stereotype threat (Steele, 2010), discussed previously. In this theory "Steele and colleagues hypothesized that when a person enters a situation in which a stereotype of a group to which the person belongs becomes salient, concerns about being judged according to that stereotype arise and inhibit performance" (Cullen, Hardison, & Sackett, 2004). This theory has found a prominent place in social psychology and it has definitively been shown to produce negative effects for those who are affected by it. In particular, the study in this dissertation examined its effects on Christian women in higher education leadership.

Feminist Theory

Because this experiment was regarding women and leadership in higher education, an understanding of feminist theory was essential to framing the work. According to the Merriam-Webster Online Dictionary (n.d.), the definition of feminism is "the theory of the political, economic, and social equality of the sexes." Encyclopedia.com says that feminist theory "refers to generating systematic ideas that define women's place in society and culture, including the depiction of women" (2001). There are many different kinds of feminist theory – liberal, radical, and postmodern to name a few – but they are all based on a difference in how women are viewed and treated in society.

Women have been treated unjustly throughout much of history, and although great strides have been made in the last decades there is much work to be done. Persistent portrayals of stereotypes regarding women in media and throughout society create an atmosphere in which

women struggle for equality. The documentary, *Miss Representation (*Newsom, 2011), is a poignant exposé on the manner in which media has hampered efforts to create equality between genders. The stereotypes may or may not be accurate, but they influence how women are treated.

Research regarding how women struggle and/or overcome inequality and oppression, and how women understand their gender, can be used to create social awareness of those issues. Through research based on feminist theory, both men and women can learn that women are individuals who should not be judged or treated according to their sex. Feminist theory research can also teach women that they can advocate for themselves, and it can present methods with which they can champion their cause. Feminist theory can provide the groundwork to shift societal norms away from being male-dominated - not in an effort to create feminist superiority, but rather true gender equality, just as the theory suggests.

Role Congruity Theory

Eagly and Karau (2002) presented the role congruity theory of prejudice against female leaders. This theory is an extension of social role theory which Eagly first posited in 1987. Role congruity theory states that there are disadvantages caused by prejudice against female leaders. The first is that women are perceived to have less leadership ability. The second is that when they do possess that ability, it is looked on less favorably than in men because it is at odds with the stereotypes of women and leaders. In one study, it was found that role incongruity does create a barrier for female middle managers in non-profit, church-related, organizations (Scott, 2014). This theory sheds light on the position that women in leadership are in, and how stereotype threat can be a very real threat for women who aspire to leadership.

Summary of the Experimental Survey Study

In order to examine the effects of stereotype threat in Christian women in higher education and leadership, a quantitative study was performed using a set of two surveys given to women in higher education in various institutions in Michigan. The experiment was modeled after a study done by Jennifer Flanagan which examined business students. She surveyed 56 male and female students who were randomly placed into a control group and treatment group. The treatment group was asked their gender before answering questions regarding management skills, while the control group was not. Flanagan found that female students rated themselves lower when asked their gender first (Flanagan, 2015).

Limitations and Delimitations

Some limitations regarding the study were the following. By the very nature of an electronic survey, only some of those contacted chose to participate. This meant that not all women in the MI-ACE Women's Network or in higher education positions were a part of the study. In addition, there was a wide range of Christian beliefs regarding leadership and women, such as differences due to ethnic background and differences in how they viewed leadership for women. This could possibly affect the way in which they completed the surveys. Finally, since not all women in the survey were in leadership, there may be a significant number of participants who were not interested in leadership and therefore may not have had a vested interest in their leadership skills or what others believe about their skills.

The first delimitation was that the survey was sent only to chapters of the MI-ACE Women's Network. This was decided because of the extensive work that would need to be done in order to obtain permission to send the survey to all women at all institutions in Michigan. By using the MI-ACE Women's Network, existing listservs of women in higher education across

Michigan could be used. Next, it was necessary to send the survey during the summer months, so there may not have been as many faculty represented in the data as there would have been in typical academic semesters. Third, the screening survey was sent with a 3-week deadline. This meant that if the Institutional Representatives did not send it out right away, their chapter would have less opportunity to complete it. This could, in turn, affect the number of respondents from those institutions. Fourth, the survey was sent only to institutions in Michigan. This may have affected the results because different areas in the United States have different percentages of Christians within their population. In addition, there are differences in beliefs among Christians in different areas of the nation. This could also affect the results of the study. However, by keeping these limitations and delimitations in mind while assessing the results, the ramifications of the work can be applied appropriately and under the right conditions.

Significance

Women and Christians face many stereotypes, and some of these are in relation to leadership. Due to this, stereotype threat can have an effect on how they feel about their leadership skills and how others regard their skills. It could even affect their aspirations toward leadership. Even with so many research studies done on stereotype threat, very little has been done on women in U.S. higher education and leadership, and it appears no research has been done on Christian women in U.S. secular higher education and leadership. This indicates a great need in researching this phenomenon. The study to follow examined an area of stereotype threat that has never been addressed. As such it will broaden the scope of stereotype threat research to encompass an area previously neglected.

Conclusion

At the beginning of this chapter, I shared my personal experiences and the effects they have had on my points of view and my career in higher education. As this study unfolds, it is imperative that I both acknowledge and keep my experiences and beliefs at bay in order to maintain an objective point of view. Allowing my personal beliefs and experiences to cloud my judgment would only diminish the strength of the findings. Therefore, at each step of the research outlined in this chapter, it is important that I review the work and determine if I am viewing it with objectivity and the heart of a researcher. Only in this way can the research contribute to the work on stereotype threat and its effect.

CHAPTER 2: REVIEW OF THE LITERATURE

Stereotype threat has been widely researched since its articulation as a theory in 1995. As seen in the last chapter though, little research has been done on Christians or Christian women. This chapter will investigate the existing literature in regard to the focus of this paper. Figure 1 is a map of the literature review to follow.
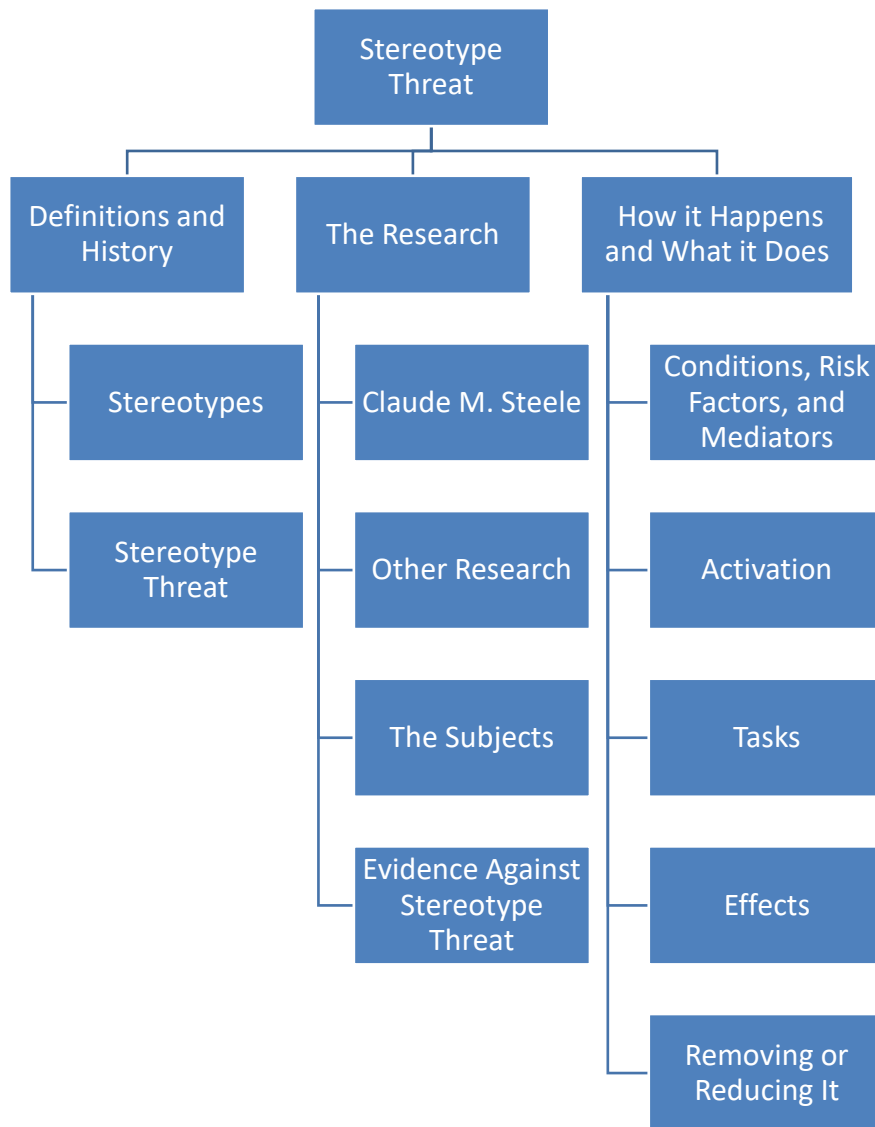
Figure 1. Literature Review Flow Chart

Overview

Much of the research on stereotype threat has been done in reference to women in regard to their math skills and African Americans in regard to their scholastic ability; however, stereotype threat can affect all people in situations where stereotypes are relevant. Since each person is a member of multiple social groups, they can be affected by stereotype threat in different ways, from multiple sources, and in differing degrees. As proven by a multitude of studies, which will be discussed in the following pages, other groups such as Asians, Hispanics, Middle Easterners, Whites, men, poor, elderly, veterans, the religious, and many more can be negatively affected by stereotype threat in some situations.

Although certain groups have been emphasized in the research, there are others for which little or no research has been conducted. This study focuses on Christian women in secular higher education. Although women have been the subject of numerous studies, most of those studies center on math performance. There is also a good deal of research on women in leadership, but little of that is specifically regarding higher education. In addition, any research done on Christians is most often done in regard to Christian institutions. And finally, it appears that no research has been done on Christian women in secular higher education leadership. This study intends to rectify the gap in research for this group.

Stereotypes, its Definition, and History

Previously, the definition of stereotype was given as "a belief about a group of individuals." (Kanahara, 2006, p. 311). According to the English Oxford Living Dictionary, it is defined as "a widely held but fixed and oversimplified image or idea of a particular type of person or thing (Stereotype, 2019).

Walter Lippman was one of the first people to use the term stereotype to refer to a mental image of someone in his 1922 book, *Public Opinion*, although at the time others were using it in a similar way as the word cliché (Newman, 2009). His book was not actually about stereotypes and he just used the word as a matter of course without defining it, but he later became heralded as the man who introduced the term. However, that is not the case since the term was used previously to refer to the printing process (Newman, 2009). However, for our purposes, we will begin with his use at this point.

In less than 100 years from Lippman's 1930's book, social psychologists have conceptualized and operationalized stereotypes, learned where they come from and how to change them, and developed "a substantial understanding of the influence of stereotypes and prejudice – as social expectations – on behavior" (Strangor, 2016). Although initially stereotype threat was more often examined in academic settings, now research is focused on self-perception and feelings of belonging (Spencer, Logel, & Davies, 2016). Below are some highlights of the research.

In 1933, Katz and Braly gave a questionnaire to 100 Princeton students and from the results created a very accurate description of stereotyping.

> We have conditioned responses of varying degrees of aversion or acceptance toward racial labels and where these tags can be readily applied to individuals, as they can in the case of the Negro because of his skin color, we respond toward him not as a human being but as a personification of the symbol we have learned to despise. (p. 280)

Within the questionnaire they asked "people to assign adjectives from a long list to members of a range of national and ethnic groups, including their own" (Haslam, 2008, p. 945). They found that some stereotypes were shared by many and some were very negative. "…whereas Americans were most likely to describe Americans as industrious and intelligent, they described Jews as shrewd and mercenary and Negroes as superstitious and lazy" (Haslam, 2008, p. 945, p. 945).

After World War II, there was a phase in which researchers believed that only authoritarians held stereotypical views of others, but this did not last long since the evidence did not bear it out. (Haslam, 2008).

One of the most well-known names in stereotype research is Gordon Allport. He was one of the first to look at how prejudice and stereotypes affect the target of those beliefs. One of his oft-quoted statements speaks to that concept. "One's reputation, whether false or true, cannot be hammered, hammered, hammered, into one's head without doing something to one's character" (as cited in Marx, Brown, & Steele, 1999 p. 492). He also believed that

> stereotyping was a normal cognitive activity that was essential for a predictable and manageable life and that derived from the rational (if error-filled) process of categorization. These insights were distilled into the view that stereotypes are a form of "necessary evil": They are the outcome of a simplification process that arises from the cognitive impossibility of treating everyone as an individual, but that, as a result, also introduces distortion and bias (Haslim, 2008, p. 946).

Henri Tajfel and A. L. Wilkes, in the 1960s, gave more evidence of Allport's views when they showed that when objects are categorized, the people who judge them tend to exaggerate their attributes. They did this by having the experiment's participants examine shorter and longer lines. When the lines were categorized as group A and B, for shorter and longer lines respectively, the participants exaggerated the similarities and differences compared to the control group (Tajfel & Wilkes, 1963).

In the 1980s, a theory called the social-cognitive approach gained momentum. This approach asserted that the mind stereotypes to save energy, and it sought to determine how much of stereotyping was automatic and how much was under the person's control (Deaux, 1995; Haslim, 2008). At the same time, others believed there was a social or political role to stereotyping. "According to this view, stereotypes exist not to save effort but to make social and political

behavior possible" (Haslim, 2008, p. 946). With differing views such as these, it is evident that stereotypes will be researched for many years to come.

History of Quantitative Stereotype Research on Gender

When feminism became more widespread in the 1960s, it brought the idea of gender stereotypes to the attention of researchers. Therefore, in the 1970s, research began to emerge on the subject. Said research discovered that men were thought to be more agentic while women were thought to be more communal, as discussed in Chapter 1 of this paper. The research also found stereotypes about physical characteristics, occupations, and so forth (Deaux, 1995). Research has continued and is still be carried out today.

History of Quantitative Stereotype Research on Christians

There is very little stereotype threat research on Christians. The quantitative studies found were concerned with Christians stereotypes about their ability in science and they were all done by the same group of researchers (Rios, Cheng, Totton, and Shariff's, 2015). The second was a qualitative study completed by Daryl L. Hawkins in 2018. This was a qualitative study, so it is outside the realm of this dissertation, so it will not be discussed here. Both were within the last five years. In Rios, Cheng, Totton, and Shariff's experiments (2015), they found that non-Christians believe that Christians are not good at math, and they found that Christians who were exposed to a negative stereotype about Christians and science rated themselves lower in science ability. The results of the quantitative studies will be explored more fully shortly.

World-Wide Stereotypes

Stereotypes vary throughout the world. For example, in the United States, Asians are considered more intelligent; however, in Canada, that stereotype is not prevalent (Shih, Pittinsky, & Andamy, 1999). However, gender stereotypes seem to be cross-cultural. In other words, in many

ways, they are the same all over the world. For example, Fiske (2017) states that women in most

cultures are considered warm when they conform to traditional stereotypes about women, but they

are also considered less competent. When they don't conform, the reverse happens.

Stereotype Threat Definition and General Principles

In their seminal article, which has been cited more than 5000 times, Steele and Aronson

(1995) stated that stereotype threat is a social-psychological predicament about negative

stereotypes regarding one's group. In this predicament,

> the existence of such a stereotype means that anything one does or any of one's
> features that conform to it make the stereotype more plausible as a self-
> characterization in the eyes of others, and perhaps even in one's own eyes
> …[and] when the allegations of the stereotype are importantly negative, this
> predicament may be self-threatening enough to have disruptive effects of its
> own." (p. 797)

Steele called this a self-evaluative threat. In essence, this means that when someone feels a threat

to their social group due to perceived stereotypes, whether consciously or unconsciously, they feel

that others may believe they conform to that stereotype if they affirm it in their performance, and

thereby affirm the stereotype in general. Walton & Spencer (2009) compared stereotype threat in

academic performance to a runner who is running against the wind. They can still run the race, but

they are running at a deficit that has nothing to do with their actual ability. Although the effect of

stereotype threat is relatively small, "as this threat persists over time, it may have the further effect

of pressuring these students [or other sufferers] to protectively dis-identify with achievement in

school and [or] related intellectual domains" (Steele & Aronson, 1995, p. 797).

In 1997, Steele again published regarding the topic. In this article, he further defined

stereotype threat, concentrating on domain identification and its connection to stereotype threat.

He stated that "the theoretical focus is on how societal stereotypes about groups can influence the

intellectual functioning and identity development of individual group members" (Steele, 1997,

613). Unfortunately, "individuals often see themselves in terms of the social identity that is most stigmatized in a given situation" (Branscombe et al., 1999; Maalouf, 2001; Steele, 2002; Steele et al., 2002. As quoted in Davies, Spencer & Steel, 2005, p. 278).

"Different groups experience different forms and degrees of stereotype threat because the stereotypes about them differ in content, in scope, and in the situations to which they apply" (p. 618). It can occur in an integrated setting with members of the group and not of the group, or it can occur when the subject is alone. Even if one proves themselves in one setting it does not translate to other settings, so the effect can be cumulative since they have to try to counter it over and over again. Also, the more invested someone is in the setting, the more stereotype threat can affect them. Steele called stereotype threat a "serious intimidation, implying as it does that they may not belong in walks of life where the tested abilities are important – walks of life in which they are heavily invested" (Steele, 1999).

Since stereotype threat affects people based on their social, ethnic, and gender associations, and virtually every person has typical stereotypes associated with the group or groups with which they identify, the sociological implications are vast. For example, African American men's scores are negatively affected by just asking them their race before a difficult exam, and women and children of lower socioeconomic status are affected by simply stating that the exam is a test of mental capability (Steele, 2010).

The Research on Stereotype Threat

Hundreds of studies have been done in reference to stereotype threat and therefore its effects have been well-documented. This section will discuss the work of Claude M. Steele, as well as other research. Then specific research on women and Christians, the conditions and effects

of stereotype threat, possible evidence against it, and methods for reducing stereotype threat will be discussed.

Highlights of Steele's Research

Claude M. Steele is the father of the theory of stereotype threat. Beginning with his first article in 1995, completed with Joshua Aronson, he outlined the theory, its criteria, and its effects. Understanding his work is imperative to understanding the condition. The following is a summary of that work.

In the 1995 set of studies, Steele and Aronson (1995) found that with "SAT differences statistically controlled, Black participants performed less well than White participants when the test was presented as a measure of their ability; but improved dramatically, matching the performance of Whites, when the test was presented as less reflective of ability" (p. 801). Their third study of the paper was on the activation of stereotype threat. It tested whether the thought of taking a difficult test that they knew would assess ability would arouse the threat. They found that it did. In addition, "study 4 showed that merely recording their race—presumably by making the stereotype salient—was enough to impair Black participants' performance even when the test was not diagnostic of ability" (p 808).

They also studied the effects of stereotype threat activation and avoidance. They started by having those in the treatment group do sample questions for a difficult math exam. Then they had the participants complete word fragments, some of which could be completed with racial or self-doubt stereotypes. To test avoidance, they asked them about their taste in music, sports, and so forth with a bent toward stereotypes. Those Blacks in the diagnostic group answered more word fragments with racial or self-doubt words than those that were not in the group and listed fewer African American preferences in music, sports, and so forth. (Steele & Aronson, 1995). When

looking at all the studies in the paper, "these experiments [showed] that stereotype threat—established by quite subtle instructional differences—can impair the intellectual test performance of Black students, and that lifting it can dramatically improve that performance…These findings suggest that stereotype threat led participants to try hard but with impaired efficiency" (p. 808-809).

In 1997, Steele and two colleagues researched the phenomenon again. In Study 1, they chose men and women who were what they considered very good at math and gave them advanced math from the General Records Examination (GRE). They found that women underperformed on the difficult test, even if they were just as qualified as the men. In Study 2, they performed equally well when the test was presented as not showing gender differences. The last study was less selective in choosing the participants, but still showed the same results (Spencer, Steele & Quinn, 1999).

In *When White Men Can't Do Math: Necessary and Sufficient Factors in Stereotype Threat* (Aronson et al., 1999), the researchers investigated white men with high abilities in Studies 1 and 2. In study 1, they chose participants who were White or Jewish Stanford students, felt math was important or they were good at math, and scored at least a 610 on the math SAT. The treatment group was given information that indicated the study was about determining why Asian men perform better at math, including articles on the subject. As expected, students in the treatment group "solved fewer of the items in the stereotype threat condition … than in the control condition" (Aronson et al., 1999, p. 34). In the follow-up questionnaire, the treatment group reported spending more effort on the problems.

The second study was a 2 x 2 factorial design similar to the first study, but with the added factor of the student's identification with math. This time the participants were from a calculus

class at the University of Texas–Austin and they had QSAT scores of at least 550. This time the Asian stereotype was within the test description. Then they were given 15 calculus questions. "Only the math identification by experimental condition interaction was significant, (p < .005)" (Aronson et al., 1999, p. 38). Also, in the follow-up questionnaire, "high math-identified participants wondered more often what the experimenter would think of them in the stereotype threat condition than in the control condition" (Aronson et al., 1999, p. 38). In conclusion, they found that white men were affected by stereotype threat in the situation in which they were compared to Asian men. However,

> This by no means implies that the white males in these studies experienced the situation in exactly the same way or to the same degree as, say, women taking the same math test under stereotype threat conditions. Clearly there must be phenomenological differences that vary as a function of many factors. Otherwise, one would expect to see white males dropping out of math and science graduate programs—which are highly populated by Asian students— with the same frequency as women. (Aronson et al., 1999, p. 38)

The authors attribute this to the fact that the White men were indirect stereotype targets since they were being compared to Asians who are said to be better at math. Women and African Americans are direct stereotype targets, since the stereotype they face with math and academics, respectively, is directly about them. They concluded that necessary and sufficient conditions for stereotype threat are most likely domain identification, or perhaps more accurately high motivation; being on the negative side of the stereotype; the individual cares about the stereotype. and there is situational pressure for the individual.

In 2004, Emily Pronin, Claude M. Steele, and Lee Ross performed three studies regarding stereotype threat. In the studies, they investigated identity bifurcation in women and mathematics in response to stereotype threat. In the concept of identity bifurcation one "can disidentify selectively—that is, disidentify with the aspects of one's in-group that are linked to disparagement

in that domain, while continuing to identify with valued in-group characteristics that are not seen as linked to such disparagement" (p. 153). The studies showed that women who were invested in their mathematical performance disavowed negative stereotypes strongly associated with women and math performance, but not those weakly associated with it. Those women that were not invested in their math performance showed no difference (p. 152?). They state that women in competitive arenas of many types can succumb to identity bifurcation as a result of stereotype threat (p. 154). Through focus groups, they found that women would avoid things such as wearing make-up or skirts when they went to math classes. They also would not flirt, gossip, or get emotional. Nor would they talk about having children (p. 154).

Davies, Spencer & Steele (2005), performed two studies. In the first study, they had both men and women watch commercials that either activated gender-related stereotype threat or did not. They found that those that watched negatively stereotypical commercials about women were more likely to choose a follower role in a task than to choose a leader role. They stated that "priming stigmatized social identities and their corresponding stereotypes can expose individuals to the insidious effects of stereotype threat in previously non-threatening situations" (p. 280). In their second study, they found that stereotype threat could be eliminated just by stating there were no gender differences in the task even after stereotype threat had been activated.

In another experiment in which Steele was involved, called *Becoming American: Stereotype Threat Effects in Afro-Caribbean Immigrant Groups* (Deaux et. al., 2007), the researchers examined first- and second-generation West Indian immigrants to the United States, specifically those from English speaking Caribbean countries. The sample was taken from college students at a New York public institution. After activating stereotype threat in the treatment group and giving them a difficult test from the GRE, they found that first-generation West Indians' performance increased compared to African Americans, while second-generation West Indians performed similarly to African Americans.

"Specifically, when stereotype threat is present, their performance drops in comparison to the first-generation comparison group and to their own performance when the test is non-diagnostic" (Deaux et. al., 2007, p. 398). This occurred even though both generations were found to equally expect to be discriminated against and feel anxiety in discriminatory social situations. The researchers hypothesized that this was because first-generation West Indians were more positive in their meta-stereotype of West Indians than second-generation West Indians. A meta-stereotype is the stereotype someone has regarding how they think others stereotype their social group.

White people can also experience stereotype threat. "…the present research investigates the possibility that for Whites, the fear of being stereotyped as racially prejudiced by a Black conversation partner may lead individuals to distance themselves from their partner. That is, the fear of being labeled prejudiced could lead to racial distancing (Goff, Steele & Davies, 2008, p. 91)."

In this publication, the researchers performed four studies. In the first, they measured the physical distance between partners in a conversation they were expecting to have when stereotype threat regarding racism and Whites was activated. When the conversation was expected to be between the subject (White) and two Black people and it was about a racially charged topic (Racial profiling), the White males placed their chairs farther from the Black participants when asked to arrange chairs before the conversation (which never actually occurred). They do admit that the cause and effect of stereotype threat and distance were not confirmed by this experiment.

In the second study, they wanted to test whether stereotype threat was causing the distancing. They found that it was if the participant was voicing their own opinion about racial profiling, rather than reading someone else's opinion. They determined that stereotype threat determined distancing even more than a person's own prejudice.

Next, they sought to determine if adopting a set of learning goals for the situation would eliminate stereotype threat, and they found that it did. Hong, Chiu, and Dweck (1995) believe this was because "if ability is conceptualized as learnable and protean, then it stands to reason that doing poorly on a test would not serve as stereotype confirming evidence" (as cited in Goff, Steele, & Davies, 2008, p. 99).

In the final study, the researchers wanted to see if the results of the first three studies could be extended to situations in which the participant actually met the partner for the conversation. They also wanted to know if participants could spontaneously generate stereotype threat thoughts. The experiment bore out these hypotheses. Their conclusion was as follows.

> Racial prejudice and racial distancing are not the same thing. Though both may lead to racial harms, they can do so via different mechanisms and it is possible for one to exist in the absence of the other. The four studies presented here provide support for the hypothesis that stereotype threat may cause Whites to distance themselves from Blacks. This distancing was unrelated to racial prejudices, either implicit or explicit. (Goff, Steele, & Davies, 2008, p. 104).

In *Stereotype Threat and Inflexible Perseverance in Problem Solving* (Carr & Steele, 2009), the researchers were investigating whether

> the burden of negative stereotypes about one's group interferes with one's capacity to adapt to new situations. Specifically, we propose that stereotype threat…may induce a perseverant way of thinking in those who experience it, interfering with their ability to replace old strategies with more successful ones when the situation changes. (p. 853)

The participants were both men and women, and undergraduates at Stanford. They also exhibited a high domain identification, which meant that they related well to the domain. In this case, the domain was being good at math. In their first experiment, they had participants do the Water-Jar Task which requires filling a virtual water pot using three different sized jars to test inflexible perseverance and a lexical decision task in which participants had to classify a string of letters as a word or non-word in order to test stereotype suppression. In the task, some of the words

were stereotypical regarding women and math. They found that women had higher inflexible perseverance, and they had increased effort in suppressing stereotypes when they were part of the treatment group which was told that the Water-Jar Task was highly indicative of mathematical prowess. Men did not have a similar effect.

In the second study, the researchers wanted to examine stereotype threat from the perspective of making mistakes. The participants completed the Wisconsin Card Sorting Test (WCST) as well as a lexical decision task. In this case, the treatment was that the WCST was "described as a test of spatial and analytical ability predictive of success in mathematical and spatial fields" to the treatment group (Carr & Steele, 2009, p. 857). In the WCST, participants learn the rules by making mistakes. In the lexical decision task, the only difference was that now the words were about making mistakes rather than being about stereotypes of women and math. They found that in the WCST, women were still more perseverant, but they did not find support that thinking about mistakes instigated the perseverant behavior.

Ambient Belonging (Cheryan, Plaut, Davies, & Steele, 2009) had two goals. The first was to show that stereotypes should be considered if one is trying to bring diversity to an environment. The second was to show that just physically changing the environment can make group members feel more welcome and increase the representation of underrepresented social groups. The researchers defined *ambient belonging* as feeling like you belong in an environment. They determined that subjects felt better when placed in an environment with "*ambient identity cues*, or socially symbolic objects that embody and communicate group member stereotypes to others prospectively evaluating the group" (p. 1046). So, even objects in the room such as plants, posters, and art can affect a person's sense of belonging.

Again, their experiments were performed on undergraduate students. In their first study, they put items in a computer science setting that were either stereotypical, such as a Star Trek poster and comics, or non-stereotypical, such as a nature poster and general interest books. Women in the stereotypical setting showed less interest in computer science, while for men there was no difference between the stereotypical and non-stereotypical environment.

In the second study, they only included women. This time the participants were asked to imagine that they were about to join one of two all-female teams and the work environments for the two teams were described as one being stereotypically computer science-oriented and the other non-stereotypical. They also asked some stereotype threat questions, such as "If you worked at this company, how much would you worry that people would draw conclusions about your gender based on your performance" (p. 1050). They found that women more often chose the non-stereotypical team to work with, so even when men were not going to be present the stereotypical environment affected them.

Next, they looked at the objects specifically and what stereotypical thoughts they brought to mind. In this study most of the participants were women. They administered a survey to undergraduate students regarding two companies for which they might work, and those companies were the same except for the objects they had in their environments. They found that when they associated stereotypical objects with computer science majors, a smaller percentage of women chose the stereotypical company, the stereotypical environment was considered more masculine, and men had a greater sense of ambient belonging in the stereotypical company. However, both men and women chose to work in the non-stereotypical company more frequently.

In the fourth study, the previous results were confirmed, with few variations. All of the studies also asked questions regarding stereotype threat; however, including the effects of stereotype threat in the analyses did not change the results of each study.

In the final study regarding stereotype threat with Claude Steele, the researchers investigated decision making and stereotype threat. In the first study, Steele and Carr (2010) wanted to know if stereotype threat increased loss-aversion. They told male and female participants in the treatment group that they would be tested on mathematical, logical and rational reasoning. The rest they told were doing puzzles. Then the treatment group was asked their gender, given two equations to solve in two minutes, and then given a loss-aversion exercise. The exercise involved asking them whether they would play six different coin toss lotteries, depending on how much they could win or lose. The control group was asked their gender after all the other exercises. They found that women in the treatment group exhibited more loss-aversion than men.

In the second study of the paper, there were two parts. They kept the same experimental manipulation in both, but then gave the participants one of two tasks. The first was a risk-aversion task. It involved asking them if they would rather play a riskier or safer game when the expected values were the same. The number of times they chose the safer option determined their risk-aversion. The second was an ego-depletion task using a computerized Stroop task. This task had the students determine the font color of a number of color words, some of which match (red is colored red) and some of which do not (green is colored blue). In this part of the study, the participants also did the risk-aversion task after the Stroop task. They found that stereotype threat increased risk aversion and ego-depletion.

Dr. Claude M. Steele researched stereotype threat for 15 years and consistently found that it existed and that it had a detrimental effect on those that suffer from it. Through this research, he has laid the groundwork for further study on the effects of stereotype threat.

Other Research

In Levy's article, *Improving Memory in Old Age Through Implicit Self-stereotyping* (1996) she showed that activating stereotypes in the elderly can decrease performance. Subjects were given memory tests before and after treatment. For two of the memory tests, they were asked how they thought they would perform before taking it. The treatment group was then given a stereotype priming task. Then during the treatment, they were told they were being exposed to a light that helps with memory, as well as given some questions to answer. After the first set of memory tests, implicit and explicit interventions were given. Half of the treatment group was told they were given a placebo light and their increased performance was their own, and half were told it worked and their performance increased because of the light. Finally, all three groups were given a second battery of memory tests, which the control group went straight to, instead of going through the treatment and interventions. Levy found that priming the stereotype of lower memory as aging occurs affected memory performance, but the implicit and explicit interventions to try to remove the stereotype threat were not effective in doing so.

In another study regarding women and learning, Boucher, Rydell, Van Loo & Rydell found that

> Compared with women in the control condition and women who had stereotype threat removed before learning, learning and transfer were poorer for women in the stereotype threat only condition and women who had stereotype threat removed after learning but before learning assessment. Men's learning and transfer were unaffected by condition. (2012, p. 174)

Shantz and Latham (2012) studied the interview performance of women and men. Participants were fourth-year business students (20 male and 30 female). They participated in various role-playing interview interactions. The researchers found that stereotype threat prior to an interview led them to not perform as well, and therefore women would be at a disadvantage when applying for positions in leadership.

Massey and Fischer (2005) surveyed approximately 4000 freshmen and sophomores at 28 institutions of higher education. They found that those most likely to internalize negative stereotypes were Blacks and Latinos with families of higher socioeconomic status and who did not have strong ethnic bonds and friends. Those most likely to externalize negative stereotypes – meaning those most likely to believe that others judge them according to negative stereotypes – were those who came from broken but more affluent homes and strong ethnic backgrounds. This externalization had some connection to an increased performance burden. Both of these effects lowered performance for the affected groups. However, the effect was much less when those surveyed had minority professors.

Shih, Pittinsky, and Andamy (1999), studied undergraduate Asian women. They compared how well they performed on difficult math when their gender (a negative stereotype) was made salient and how they performed when their ethnic background (a positive stereotype) was made salient. They did this by giving a pre-treatment survey in which they asked questions of the participants that made their gender or ethnic background become more relevant, but in an indirect way. Then they gave them a difficult math test. They performed the study in the United States and in Canada, where stereotypes of Asians are different. In the U. S., Asians are thought to be more intelligent, and in Canada, that stereotype is less prevalent. In the U. S. study, the expectation was that when their ethnicity was made salient, they would perform better than the control group; but

when their gender was made salient, they would perform worse than the control group. The results

bore this out. The Asian salient group performed best, followed by the control group; and the

lowest was the gender group. In Canada, they expected that ethnicity would not increase

performance and that is what happened. The control group did best, followed by the Asian group

and then the gender group. Also, data suggested "that participants were not aware that their

performance was being affected. There were no differences across conditions in how well

participants thought they did. Further, participants were not aware that there was a target identity

being made salient in this study and were unable to guess the study's hypothesis. (p. 81)."

In Ben-Zeev, Fein, and Inzlicht's second study (2003), they studied misattribution and

stereotype threat. They gave participants a difficult math test, but beforehand they exposed them

to a series of tones, the highest of which humans cannot hear. Then they told the treatment group

that it might have temporary effects of increased arousal, nervousness and heart rate. They then

told the participants that the sound would be played while they took the test. After the math test,

they asked the participants what they believed caused their feelings of nervousness and anxiety.

Those in the treatment group were more likely to attribute their feelings to the noise. They also

found that those who were able to misattribute the feelings had no stereotype threat effects

compared to the non-misattribution group.

The Subjects

As this review continues it will turn to a discussion of the subjects for this study. Not only

will Christian women in higher education leadership be studied, but also women in general. To

date, there has been no research done on Christian women and their experience with stereotype

threat. Research on women in leadership is more prevalent, but it is still insignificant compared to

the research done on women in math or African American males and academic performance.

Women and stereotype threat. The vast majority of research done on women with respect to stereotype threat is regarding performance in math. Women have been repeatedly shown to do less well on difficult math tasks when stereotype threat is activated (Steele, 2010).

> Many explanations have been offered for why women have difficulty in reaching top leadership positions and chief among them is the stereotype-based lack of fit between women's characteristics, skills, and aspirations and those deemed necessary for effective leadership. Gender stereotype-based expectations not only affect who people see as "fitting" the preconceived notion of a leader, but they also affect women themselves. (Hoyt & Murphy, 2016, p. 388).

When women management students were evaluated on their performance on a set of managerial in-basket issues that required responses, they performed less well when told their recently departed predecessor had male stereotype characteristics (Bergeron, Block & Echtenkamp, 2006). When a negotiation exercise was described as being highly diagnostic of MBA students' negotiation skills, women did less well at the exercise than men (Kray, Thompson, & Galinsky, 2001), even when the description had nothing to do with gender or stereotypes. When they knew it was diagnostic of ability, women in the treatment group believed they would do less well than men, and men believed they would do better. Through their investigation, they determined that stereotype threat was the culprit.

Christians and stereotype threat. In Rios, Cheng, Totton, and Shariff's experiments (2015) in regard to stereotypes about Christians and scientific intelligence, they found in one study that non-Christians believe Christians are less scientifically and generally intelligent. In a second, they studied psychology undergraduates. They had the treatment groups read an article that either said Christians are good at science or bad at science. There was also a control group with no article to read. Then they gave them a survey about how they rated themselves in science. They found that in the high threat group (bad at science article) and the control group, Christians "identified

significantly less with science than non-Christians" (p. 962), but in the low threat group (Christians are good at science article), there were no significant differences.

In yet another study of Amazon Mechanical Turk workers within the same article, they had participants read a paragraph stating that Christians don't perform as well on scientific tasks and then had them complete some scientifically oriented syllogisms. The high threat group's Christians performed less well than the non-Christians compared to the group that read an article stating that Christians perform just as well as non-Christians. When they gave the participants scientific problems that ranged from simple to more difficult in a fourth study, they told them this time that it was a scientific ability test and that they were studying the differences between Christians and non-Christians. The control group was told it was measuring intuitive thought. This time they found that Christians again performed less well in the high threat group on both easy and difficult problems. Therefore, they believed their stereotype threat effect was disengagement from the task rather than an anxiety-driven effect. In their last experiment, the participants completed their tasks in different locations – one was a divinity school and the other was the physical sciences building. Christians scored lower when taking it in the divinity school. Their conclusion was that Christians are negatively affected by stereotype threat regarding Christian competence in science, and even though Christians are in the majority in the United States, they still can be affected by stereotype threat.

Evidence Against Stereotype Threat?

Although stereotype threat has been shown to have an effect on test performance and tasks, this is not the only contributor to differences in performance. Many opponents to the effects of stereotype threat point to that in their arguments. Sackett, Hardison, & Cullen (2004) explained that Steele and Aronson's experiment on SATs with White and Black participants did not say that

their scores became equal after removing stereotype threat, but rather that their *adjusted* scores based on prior SAT scores became comparable. Sackett's group cautions "against interpreting the Steele and Aronson experiment as evidence that stereotype threat is the primary cause of African American-White differences in test performance" (2004, p. 11). The point here is that removing stereotype threat will not necessarily remove differences between groups. Usually, the effect of stereotype threat is small, so removing the threat can help to decrease the gap between identity groups, but quite often there are other issues in play that also contribute to differences in performance in those groups. Upon closer examination of the Steele and Aaronson experiments, one sees that they were not stating that removing stereotype threat would remove all differences in scores. They clearly stated they adjusted the reported SAT scores of their subjects. Their purpose in doing so was to make the scores comparable, and then the only effects that would show in the results would be changes due to the stereotype threat treatment.

Lee Jussim (2015, December 30), in his article called *Is Stereotype Threat Overcooked, Overstated, and Oversold?* stated that when Steele and Aronson adjusted the reported SAT scores of their subjects and the scores of the test they gave during the experiments, it affected their results. However, as stated previously, the point of adjusting the SAT scores was so that the subjects were basically on a level playing field. In that way, any differences in the experiment's scores could be completely attributed to the experimental conditions. Without adjusting the scores, it would have been difficult to compare the subjects.

The SAT with college GPA and the Armed Services Vocational Aptitude Battery (ASVAB) were the focuses of Cullen, Hardison, & Sackett's research (2004) regarding women and African Americans. The goal of the research was to determine if there is the existence of stereotype threat in real-life situations. In the SAT analysis, they reviewed SATM (math) and

SATV (English) and freshman GPAs for 50,000 college students from 13 colleges and universities with relatively high numbers of African Americans. They chose to use the SATV and college GPA as the criterion, even though English is not an area that has been shown to produce lower performance under stereotype threat; and the analysis did not show any evidence of stereotype threat. This may have been because there are no specific stereotypes about English and African Americans. For the ASVAB, they examined about 5400 military personnel scores on the battery of tests that predict performance in military jobs. They then compared them to actual performance. In that analysis, they also did not find a case for stereotype threat. However, there was nothing in the report to indicate whether the ASVAB is difficult for the exam takers, which is a criterion for stereotype threat.

Another issue brought up in the literature is publication bias. This bias occurs when publication decisions are affected according to the findings themselves. "One pernicious form of publication bias is the greater likelihood of statistically significant results being published than statistically insignificant results (Franco, Malhotra, & Simonovits, 2014, p. 1502)." When researchers decide not to publish results because they do not support their theories, regardless of the topic being investigated, it inflates the research that does support the theory. Therefore, it can appear that a theory is more highly supported that it really is. This phenomenon is not only applicable to stereotype threat, but also to all forms of research that have been studied extensively. Researchers do not want to present studies that do not produce the results they want, or that do not support other studies that support it – especially when they are so numerous, as in the case of stereotype threat. Therefore, there is the possibility that stereotype threat is not as well supported as it appears to be due to this bias. However, this is an issue for all types of research, not just stereotype threat.

A final issue to be explored here is replicability. Some of the seminal studies on stereotype threat have not been replicated in later studies. One example is a study done by Stricker and Ward (2004). In this experiment, they attempted to replicate the results of Steele's study. In the study, they asked the participants about their ethnicity, and it did not affect their performance on a difficult test. In Stricker and Ward's study (2004), it says, "These results fail to confirm the hypotheses about the adverse effects for Black and female students based on Steele and Aronson's (1995) findings for Black research participants and the implications of this result for the performance of females on quantitative tests" (p. 695).

In statistics, there are two types of error. Type I is when the researcher rejects a true hypothesis, and type II is when the researcher accepts a hypothesis that is not true. One of the most difficult things to do in a study is to determine the best way to reduce the chances of making either error. In a study done by Stricker and Ward (2004), they examined whether asking demographic questions before or after the 1995-96 Advanced Placement (AP) exams for high school students and Computerized Placement Tests (CPTs) for new community college students, made a difference for women and African Americans. Stricker and Ward chose to lean toward the possibility of making a type II error over a type I error, and as a result, they determined that it did not in their statistical analysis. However, when Danaher and Crandall (2008), re-examined the data and leaned toward making a type I error over a type II error, they came to a different conclusion. They determined that there was a significant increase in women's performance (stereotype threat removal) when gender was asked after the AP, but men's performance actually decreased. Therefore, the evidence against stereotype threat seems to be in the eye of the beholder.

How Stereotype Threat Happens and What it Does

The result of the numerous studies on stereotype threat, some of which have been shared above, have brought many factors and effects to light. Below are highlights of conditions, risk factors, mediators, activation of, and effects of stereotype threat.

Conditions, Risk Factors, and Mediators

Stereotype threat occurs in many ways and is considered a situational effect. Therefore, studies have looked at the conditions, risk factors, and mediators that are necessary for stereotype threat and its effects to occur.

Stereotype threat relevance. The relevance of a stereotype to a person is an important factor in whether or not they are affected by it. "…The relevance of the stereotype to the target is critical—only those individuals whose social identity is targeted by the stereotype are vulnerable to stereotype threat" (Spencer, Logel, & Davies, 2016, p. 422).

Domain identification. Within his article, Steele (1999) outlines a number of features and characteristics of stereotype threat and its effects. According to him, stereotype threat affects the members of any group about whom there exists some generally known negative stereotype, but the person must identify with the group in order to be affected by it. He calls this *domain identification* – the degree to which a person stakes their self-image on a given ability (Aronson et al, 1999). However, the person does not need to believe that the stereotype is true of themselves. Stereotype threat usually affects more confident people who feel their group will be affected if they do not perform well; so, performance is important to them, and the person has to care whether their performance will confirm the stereotype. (Steele 1997; Aronson et al, 1999).

Desire to succeed. Unfortunately, the higher the individual's desire to be successful at a given difficult task, the more they can be affected by stereotype threat. If there is no desire to

succeed, then the effect of stereotype threat is minimal (Aronson et al, 1999; Spencer, Logel, & Davies, 2016). Therefore, those that have the highest desire to achieve are most affected. So, for example, White and Black male students could have the same desire to succeed in their college courses, but because Black students are in a situation in which the stereotype that Black males are not as intelligent is activated on a regular basis, they do less well in their classes.

Intelligence. In Hess, Hinson, and Hodges' study (2009), they researched older people and memory. They found that those with higher levels of education were more susceptible to stereotype threat. Also, female and African American students taking higher-level mathematics courses are affected more specifically by stereotype threat, implying a certain level of intelligence (Steele, 2010).

Stress. The higher the stress levels of the sufferers the more extreme the effect of stereotype threat on the individual's performance. Flanagan (2015), who examined stereotype threat in the workplace, stated, "The impact of stereotype threat can be [facilitated] by stress, such as evaluation apprehension (test anxiety), which exists in the workplace in the form of micro-management of workers, one-on-one training, competence testing, and performance evaluations" (p. 2).

Cognitive Load. "Cognitive load refers to the amount of information and tasks preoccupying a person's mind. The higher the amount of load there is on the brain, the more a person is affected by stereotype threat" (Flanagan, 2015, p. 2). As Steele (2010) has stated, those who are trying to fend off stereotype threat have a reduced amount of brain capacity left to spend on the task at hand; therefore, they are not able to compete as well with those not facing stereotype threat.

Activation

Sources of activation of stereotype threat can vary and can take many forms. Since it can vary to such a high degree, it can be difficult to pinpoint the particular activation in a given situation, or there could be multiple activation triggers working in concert. Below are examples of the ways in which stereotype threat can be activated.

Focusing on intelligence or evaluative aspects. Pointing out within a situation that there are differences in how various social groups perform activates stereotype threat. In the case of Steele's experiment on white and Asian performance, they told participants in the treatment group that it was a "study exploring Asians' strength in math and that the test they were taking was 'one on which Asians tend to do better than whites'" (Steele, 2010, p. 90). As a result, the White participants performed less well.

Also, when study participants susceptible to stereotype threat were told the task they were about to perform was evaluative of intelligence, they tended to perform less well (Steele & Aronson, 1995). "…people tend to be more invested in the evaluative implications of their performance to the extent that the stigmatized identity is central to their self-concept" (Spencer, Logel, & Davies, 2016, p. 423).

In multiple studies, the stereotype threat treatment included stating something along the lines of "The following test has shown a difference in performance" between two groups, such as Blacks and Whites, men and women, Whites and Asians, and young and old (Steele, 1995; Aronson et al., 1999, Spencer et al, 1999; Schmader and Johns, 2003). At other times the researchers would state "there are no differences" between groups (Spencer, Logel, & Davies, 2016). Under the different statements, the participants performed as expected; meaning they did less well when they were told there was a difference in performance.

Focusing on social group. Steele and Aronson, in their first publication in regard to stereotype threat (1995), only asked ethnicity in one of their studies before having participants perform a difficult task. Just asking that of African American students caused them to perform less well on verbal problem-solving. In Flanagan's study (2015), the researcher simply asked their gender and it was enough to focus participants on the stereotypes of women and leadership. There was a similar effect in Rydell, McConnell, and Beilock's (2009) experiment when they simply asked women their gender before giving them a math test. Of course, that is only one way to focus on the social group. Many experiments activate stereotype threat by having the participants read or watch something that points out the social group of which they are a part. For example, Shih, Pittinsky, and Andamy (1999), discussed previously, tested stereotype threat with Asian women, focusing on either their ethnicity or gender. The results will be revealed in the Effects section of this paper.

Media. Women exposed to gender-stereotypic commercials were negatively affected by the experience (Davies, et. Al., 2002). In two experiments, women who watched the commercials performed less well on a math test or they avoided math questions in favor of verbal questions. In the third experiment, the women showed less interest in quantitative fields and more interest in verbal careers.

Social environments. Seeing a woman in a male dominant situation that is related to their task can also cause stereotype threat. In Van Loo & Rydell's study (2014), it was math-related. Consider how often students see males who are dominant or in a position of authority over females in a math class. When they showed a male in a position of authority over a woman, even if it was implied, the women were negatively affected. If women are negatively affected by this when taking an exam, it can affect performance.

Multiple socials groups. There are a few experiments that test whether triggering multiple social group stereotypes can be more detrimental than just one. "Single minority stereotype threat occurs when someone identifies with one specific group, is aware of a stereotype about that group, and his or her behavior changes in a way that conforms to that group's stereotype" (Tine & Gotlieb, 2013, p. 354). Most research on stereotype threat has been done with respect to a single stereotype. However, in some instances it is possible that "individuals that identify with multiple stigmatized aspects of identity experience a larger decrement to test performance than individuals that identify with only one stigmatized aspect of identity when under stereotype threat conditions" (p. 356). In Tine and Gotlieb's experiment, they gave pre-tests of math and working memory. Then they primed (activated) the three stereotypes of race, gender, and socio-economic status by reading a statement to participants that stated there were differences according to those social groups. The participants then completed post math and working memory tests. They also completed an experiment experience survey. They found that there was a significantly negative effect depending on how many of the stereotyped groups they were a part. The interesting point is that the participants with all 3 social group membership were affected, but even if they were missing membership of one of the social groups they were not significantly affected. It took all three to make a difference.

The Task

In one of Steele's experiments, the task was a difficult verbal test and in another, it was a difficult math test. (2010). In a meta-analysis of age-based stereotype threat, the authors found that the experiments they investigated tested tasks such as "memory, cognitive and physical ability, skill acquisition, and driving" (Lamont, Swift, & Abrams, 2015). In some cases, the task is not as difficult but may have an impact on the person's self-perception. In Flanagan's study (2015), the

task was to rate their leadership skills and how they believe others would rate their skills, which brings a certain amount of self-examination to the participant; therefore, creating a measure of stress within them.

Effects

The effects of stereotype threat are numerous and can affect the victims in varying degrees. Those effects are psychological, sociological, and physical responses to stereotype threat and its removal. Some of those effects include dis-identification, stress, preoccupation and distraction, and lower performance on difficult tasks. "A mind trying to defeat a stereotype leaves little mental capacity free for anything else [they are] doing" (Steele, 2010, p. 123), so those under this type of threat are constantly multi-tasking between combatting the stereotype perception and completing the task at hand. Many responses to stereotype threat have been proposed by researchers and a large selection of them will be examined below.

Decreased vs. increased performance. In many of Steele's experiments, the most prevalent negative outcome to stereotype threat manipulation was lower performance on a difficult task. Whether it was a lower score on a difficult test (Steele & Aronson, 1995; Steele 1997; Aronson et al, 1999), lower cognitive achievement, decreased physical performance (Lamont, Swift, & Abrams, 2015), or other measures, it was a reduction in performance that could affect the sufferer in a multitude of ways.

In Shih, Pittinsky, and Andamy's study (1999), undergraduate Asian women performed less well than either the control group or when their ethnicity was made salient, than when their gender was made salient. In *The Effect of Stereotype Threat on the Interview Performance of Women* (Shantz & Latham, 2012), women performed less well on an interview after reading a managerial job description that included masculine traits compared to one with neutral traits.

In Spencer et al (1999), white male participants actually performed better when the gender stereotype was activated. Perhaps because knowing that women have a stereotype that they are not as good at math makes them feel superior in their performance. This change in the men's performance was an example of stereotype lift, a phenomenon in which activating a stereotype actually increases performance.

O'Brien and Crandall (2003) determined that arousal might have a large effect on performance under stereotype threat and "operating under the fear and anxiety of confirming a negative stereotype, or being categorized as an exemplar of a negative stereotype, is sufficient to create arousal" which is "heightened activity, primarily in the sympathetic nervous system, that energizes behavior (p. 783-4). Their hypothesis was that the arousal would cause participants to perform poorly when the task was difficult under stereotype threat, but they would actually perform better when the task was easy. Their experiment bore this out.

In one experiment, participants were told they would take a difficult math test. Before the test, they were asked to either write their name forward (easy task) or backward (difficult task) for 20 seconds. Women that were under stereotype threat did better than those not under it when the task was easy and less well when the task was difficult. Men were not affected (Ben-Zeev, Fein & Inzlicht, 2003).

In Shantz and Latham's study on the interview performance of women (2012), men actually did better in the treatment group, indicating stereotype lift. In that group, the job was portrayed as one that required what are considered stereotypically male characteristics.

Disidentification, decreased motivation, and disengagement. Steele states that "the possibility of conforming to the stereotype, or of being treated and judged in terms of it, becomes self-threatening. It means that one could be limited or diminished in a domain that is self-

definitional" (Steele, 1997, p. 617). As a result, the pressure of stereotype threat can make members of groups dis-identify with their group to avoid the feelings they experience. They defined dis-identification as "a reconceptualization of the self and of one's values so as to remove the domain as a self-identity, as a basis of self-evaluation. Dis-identification offers the retreat of not caring about the domain in relation to the self" (Steele, 1997, p. 614). In an article printed in The Atlantic Monthly (Steele, 1999), Steele calls dis-identification a withdrawal of psychic investment. To someone who experiences stereotype threat, it means removing themselves from identifying with the group to avoid the pain or stress it may cause. The issue is that this may cause a lack of motivation since there is no reason to try to disprove the stereotype.

When pressed with stereotype threat, the victim can lose motivation in the task that is given them once stereotype threat is activated (Hoyt & Murphy, 2016). "Research suggests that in response to repeated experiences of such devaluation, these students may adapt through a process of task disengagement that may sometimes lead to full dis-identification with the academic domain, psychologically insulating them from feedback" (Crocker, Major, & Steele, 1998; Steele, 1992).

In another example, Massey and Fischer (2005) believed that after long term exposure to negative stereotypes about academic success, minorities would disidentify with it, and therefore success was not as important. The problem with this was that they then put less effort toward academics which in turn led to lower grades.

> We find clear support for a process of disidentification—as Black and Latino students come to internalize negative stereotypes about themselves they systematically reduce their study effort, reducing their weekly study time by one-half hour for each point increase in the internalization score. (Massey & Fischer, 2005, p. 56)

On the other hand, Steele and Aronson believed "it is precisely a process of stereotype threat fostering low expectations in a domain that we suggest leads eventually to disidentification with the domain" (1995, p. 809). Regardless of which instigates which, the result is the same. Those that suffer from it perform less well.

In a study of high achieving, science-identified, African American and Hispanic/Latino students (Woodcock, Hernandez, Estrada, & Schultz, 2012), they discovered that for Hispanic/Latino students, chronic stereotype threat led to scientific disidentification which, in turn, led to decreased desire to pursue a scientific career. Woodcock and colleagues postulated, "Unfortunately, if targeted groups are not made to feel welcome in their university programs, chronic exposure to stereotype threat can lead those targeted students to disidentify from their programs and eventually abandon those programs of study entirely" (as paraphrased and cited in Spencer, Logel, & Davies, 2016).

Over-efforting. People who are facing stereotype threat tend to over-effort. This means that they work harder at the same tasks as those not affected by the threat, even though they may not be doing well. For example, in another of Steele's experiments with White and Black students, the Black students volunteered to do additional difficult anagrams when it was presented as a test of intelligence (Steele, 2010), even though it was not necessary to do them. The Black students would work much harder on the anagrams and still do less well, despite their efforts.

Uri Treisman is famous for the Emerging Scholars Program (ESP) in which calculus students excel in math because of the sense of community that is formed within the program and the support system provided to ESP students. Treisman began his work because he noticed Black students with the same SAT math scores were not doing as well as other students. So, he started observing them. He found that Black students isolated themselves and worked much harder than

other students who would form study groups and work together (Steele, 2010). The Black students were over-efforting with limited results.

Change in career or goals. Treisman also found that exposure to stereotype threat over time can contribute to some sufferers choosing to change career goals. Black students became so discouraged by their performance that they would change careers to ones that did not involve calculus (Steele, 2010). In Steele's work (2010), he posited that women tended to drop out of STEM fields because they don't want to be in a field where they have to constantly prove themselves because their gender is devalued.

Even television commercials that display stereotypes of women can elicit feelings that make women show less interest in STEM-related careers in questionnaires given right after seeing them (Davies, Spencer, Quinn & Gerhardstein, 2002). Once the stereotype threat was removed women went back to showing interest in non-stereotypical careers. However, if women are seeing stereotypically negative television commercials on a regular basis, what could prolonged exposure to them do to their career aspirations?

Inflexible perseverance. Inflexible perseverance is "perseveration in strategies that were successful once but that are no longer efficient" (Carr & Steele, 2009, p. 854). What this means is that people who have used a particular strategy previously may not be willing to update that strategy when needed. So, when a slightly different problem presents itself, the person may rely on old strategies even when something more simple or effective may be called for. Carr and Steele posited that this was a negative effect of stereotype threat.

Unrecognized or recognized anxiety. Steele found that anxiety is a considerable effect of stereotype threat, but those that were suffering from the threat did not necessarily realize they were

feeling it. They reported no more anxiety than those not suffering from it in experiment after experiment (2010).

Massey and Fischer (2005) posited that those suffering from stereotype threat would experience test anxiety as a result of their perception that others view them in terms of a negative stereotype, and this would, in turn, lead to issues in performance. These differing findings may strengthen the situational effects of stereotype threat.

Distraction. Those affected by stereotype threat are not only using mental capacity to do the task at hand, but they are also using it to deal with the specific stereotype threat. Therefore, they can be distracted from what they are doing, causing poorer performance (Steele, 2010).

Self-fulfilling prophecy. When a sufferer of stereotype threat is exposed repeatedly, it can become a self-fulfilling prophecy. Feeling that they may confirm a negative stereotype brings that stereotype to the forefront of their mind. If the person is exposed enough times, the person can start to exhibit the stereotypical behavior, and when they see the stereotype multiple times in their societal exposure, they can unintentionally take on the stereotype (Levy, 1996; Steele, 2010).

Working memory taxation. Working memory is "the ability to hold and manipulate information in mind, over brief intervals" (Burmester, 2017, p. 1). Encyclopedia Britannica states that it

> is characterized by two components: short-term memory and "executive attention." Short-term memory comprises the extremely limited number of items that humans are capable of keeping in mind at one time, whereas executive attention is a function that regulates the quantity and type of information that is either accepted into or blocked from short-term memory. (Working Memory, 2019)

Schmader, Johns, & Forbes describe it "as the domain-general executive resource associated with efficient performance on a wide range of cognitive and social tasks that necessitate coordinated information processing while inhibiting interference from distracting information"

(2008, p. 337). From these definitions, it can be seen that working memory is a complicated combination of processes. It is a delicate balance between the amount of information the mind can hold in short-term memory and the mind's decisions on which things are most important to keep in that short-term memory. As a result of this delicate balance, working memory is affected by stereotype threat because not only is the sufferer concentrating on a difficult task which requires retention of information in the short-term, but also, they are contending with the stress involved with the stereotype threat activation. What this means is that as they try to avoid confirming the negative stereotype and complete a difficult task, the "increased vigilance and control hijacks the same central executive processor (i.e., working memory) needed to excel on complex cognitive tasks, producing the very result—poorer performance—that they are trying to avoid" (Schmader, 2010, p. 14).

Schmader, Johns, and Forbes (2008) suggested three ways in which stereotype threat affects those that suffer from it. Those ways were (1) a physiological stress response that directly impairs prefrontal processing, (2) a tendency to fundamentally monitor performance, and (3) efforts to suppress negative thoughts and emotions in the service of self-regulation. They believed these all contribute to working memory depletion.

In another experiment, Johns, Inzlicht, & Schmader (2008) found that women suffering from "stereotype threat were more likely to have their attention drawn toward anxiety-related stimuli than were women in a neutral condition. Moreover, the more women showed this vigilance to anxiety, the lower their working memory on a subsequent task" (Schmader, 2010, p. 16).

Removing or Reducing Stereotype Threat

Some research has looked into the idea of balancing stereotype threat caused by negative stereotypes by also activating positive stereotypes (Rydell, McConnell, & Beilock, 2009). In this

theory, for example, the negative stereotype that women are bad at math is balanced by the positive stereotype that college students are good at math. In Rydell and associates' experiments, they found that when they countered the gender stereotype with the college student stereotype they performed as well as those in the control group and those that only received the college student stereotype. They even found that simply asking their gender caused participants to do less well on a math test while asking them their college status only, or both gender and college status, or neither had no effect on the number of questions answered correctly.

Spencer, Logel, and Davies (2016) list three categories of stereotype intervention; reconstrual, coping, and creating identity-safe environments. "Reconstrual interventions reduce stereotype-threat effects not by objectively changing the situation, but rather by leading participants to perceive a lower level of threat" (Spencer, Logel & Cavies, 2016, p. 427). One method of this type of intervention is stating the test is not a measurement of intellectual ability, that it is not diagnostic, or that it does not show differences between groups (Steele, 2010). The problem with this method is that it may actually be misrepresenting the test or task (Spencer, Logel & Davies, 2016).

Coping strategies can also be effective. One example of a coping strategy is self-affirmation. Latino middle school students who were given self-affirmation tasks 4-5 times throughout the school year on days when tests were being administered, received better grades (Sherman et. Al., 2013). So, providing self-affirmation exercises for those that may face the negative effects of stereotype threat especially before a difficult or self-evaluative task, could negate its negative effects.

Mindfulness training (Weger, Hooper, Meier, & Hopthrow, 2012) found that a simple five-minute mindfulness exercise eliminated traditional stereotype-threat effects. In the case of this

study, the mindfulness task was an audio recording that instructed the students on how to be mindful of a number of sensory experiences while eating two raisins (p. 472).

Creating identity safe environments can reduce or remove stereotype threat. This was discussed at some length previously in the study involving computer science stereotypes. Creating identity safe environments means changing the environment so that it is safe for all social groups. (Spencer, Logel & Davies, 2016). Another field study (Picho & Stephens, 2012) found that female students in Ugandan co-ed schools were susceptible to traditional stereotype-threat effects, whereas Ugandan females in all-girl schools were not vulnerable to stereotype threat. Perhaps being in a gender identity safe environment contributed to this effect.

In another study, an experiment was conducted in which students took a difficult math test. There were three treatments. In the first, the participants (both male and female) were told the test was a nondiagnostic, problem-solving exercise. In the second, it was explained as a measure of math ability and that gender comparisons would be made from the results. In the third, they were told the same thing; but in addition, the "researcher described stereotype threat and suggested to women that 'it's important to keep in mind that if you are feeling anxious while taking this test, this anxiety could be the result of these negative stereotypes that are widely known in society and have nothing to do with your actual ability to do well on the test'" (Johns, Schmader, & Martens, 2005, p. 176).

Theories on Individual Reactions to Stereotype Threat

Block et. Al (2011), in their article, *Contending with Stereotype Threat at Work: A Model of Long-Term Responses*, present a theory of four methods regarding how women in the work environment attempt to fend off stereotypes.

The first method is *invigoration* in which the person overcompensates to successfully complete a task. Although doing this can increase performance, it can sometimes have the opposite effect, as in the case of the African American students in Steele's Whistling Vivaldi (2010). They kept trying and trying to complete the task, even when they could not. This is a phenomenon Steele called over-efforting, discussed previously.

The next method is *internal attributions* in which the person blames themselves rather than the stereotype for their failure. This method gives the person a sense of control over their results; however, it may be blaming the wrong cause when actually the fault may be in the stereotype. So instead, the true cause is masked, is not acknowledged, and cannot be addressed through changing perceptions and policies.

Next is *identity bifurcation* in which the person removes themselves from the stereotyped group. In this instance, the person removes themselves from bad characteristics but keeps the good ones. In the case of women in leadership, they may distance themselves from the female stereotype that women are weak by not admitting any weaknesses. Although this may help them fend off the effects of stereotype threat, they may be setting a standard of perfection that they cannot meet.

Finally, there is *assimilation* in which the person takes on the characteristics of the positive identity group. This method may give the person the feeling that they are part of the positive identity group, but it again denies their true characteristics and the strengths thereof. For the woman in leadership, she may take on the characteristic of aggressiveness in her dealings with employees since leaders are thought to be more aggressive. This can have both positive and negative results. They may be considered "strong" leaders, but they may also be thought of as mean or uncaring. The methods listed above can have both positive and negative results.

Hoyt & Murphy look at reactions to stereotype threat in a different manner. They list three types of responses to it, two of which can lead to reducing stereotype threat. One is *reactance*. "Another way people work to make stereotypes less self-relevant is by actively engaging in counter-stereotypical behavior; that is, they engage in *reactance* responses" (Hoyt & Murphy, 2016, p. 391). This means that they will behave in the opposite manner than the stereotype. This is very similar to assimilation discussed previously.

Both Block et. Al. (2011) and Hoyt & Murphy also explore the concept of *resilience* to stereotype threat. This type of reaction includes challenging stereotypes, educating others regarding them, pointing out the positive attributes of their identity group, working together with others to combat stereotypes and redefining the criteria for success by not comparing themselves with others. These methods can be very effective because they do not deny personal attributes, but rather celebrate them.

Conclusion

Through the work of giants such as Steele, Aronson, Schmader, Johns, Davies and more, a clear picture of stereotype threat and its characteristics, triggers, effects, and methods for reducing it has been drawn. It is now the responsibility of others to research the effects in areas in which it has not been explored, such as this study does. In addition, it is vital to take this information and create environments in which people of all social groups can find equity.

CHAPTER 3: METHOD

Women are highly underrepresented in higher education leadership, as discussed previously. There are many factors that contribute to this phenomenon, but the one that was examined in this study was stereotype threat. Specifically, it was examined in reference to Christian women in higher education. The goal was to determine if activating stereotype threat affected how the subjects viewed their leadership skills or their aspirations for career advancement.

Stereotype threat is one of the most researched phenomena in social psychology with over 300 qualitative and quantitative studies done in regard to it (Schmader, Johns, & Forbes, 2008). The father of stereotype threat theory is Claude M. Steele. He and his research partner at the time, Joshua Aronson, defined stereotype threat as "being at risk of confirming, as self-characteristic, a negative stereotype about one's group" (Steele & Aronson, 1995, p. 797). The effects have been well documented, and it has become an accepted part of social psychology theory.

Purpose

The purpose of this study was to examine stereotype threat related to leadership and Christian women in secular higher education institutions. By activating stereotype threat in women and especially Christian women, by asking them to identify their social group first, the goal was to determine if they would then rate themselves lower in their leadership skills, in how they believed others would rate their leadership skills, and their aspirations to advance in their careers. Specifically, it is postulated that when Christian women are asked both their gender AND their Christian affiliation the effect will be compounded, and they will then rate themselves lowest.

Research Questions

Before presenting the research questions an explanation and labeling of the four groups in the study is needed. Below is a list of the different groups, their names, and the introductory question or questions asked.

1. Group 1 – Gender (This group was only asked their gender.)

2. Group 2 – Christian Affiliation (This group was only asked their Christian affiliation, by asking if they were a Christian and if so, what their denomination was.)

3. Group 3 – Both (This group was asked both their gender and their Christian affiliation.)

4. Group 4 – Control (This group was asked neither their gender nor their Christian affiliation)

The following are the research questions asked in the study, which were presented in Chapter 1 and have been repeated here for reference.

Central Question

What effect does stereotype threat have on perceptions of leadership in Christian women in higher education?

Sub-Questions with Hypotheses

The following sub-questions have been organized by the survey question being asked of participants. They also include the null and alternative hypotheses for reference as the analysis is completed.

Rating their leadership skills questions.

1. What is the effect on Christian women when asked their gender, Christian affiliation, or both, before being asked to rate their leadership skills?

Null Hypothesis 1: There is no statistically significant difference between the mean ranks of the four groups – Gender, Christian Affiliation, Both, and Control – when asked to rate their leadership skills under the given treatments.

Alternate Hypothesis 1: There is a statistically significant difference between the mean ranks of the 4 groups – Gender, Christian Affiliation, Both, and Control – when asked to rate their leadership skills under the given treatments.

2. What is the effect of asking Christian women their gender before being asked to rate their leadership skills?

Null Hypothesis 2: There is no statistically significant difference between the mean ranks of the Gender and Control groups when asked to rate their leadership skills under the given treatments.

Alternative Hypothesis 2: There is a statistically significant difference between the mean ranks of the Gender and Control groups when asked to rate their leadership skills under the given treatments.

3. What is the effect of asking Christian women their Christian affiliation before being asked to rate their leadership skills?

Null Hypothesis 3: There is no statistically significant difference between the mean ranks of the Christian Affiliation and Control groups when asked to rate their leadership skills under the given treatments.

Alternative Hypothesis 3: There is a statistically significant difference between the mean ranks of the Christian Affiliation and Control groups when asked to rate their leadership skills under the given treatments.

4. What is the effect of asking Christian women their gender AND Christian affiliation before being asked to rate their leadership skills?

<u>Null Hypothesis 4</u>: There is no statistically significant difference between the mean ranks of the Both and Control groups when asked to rate their leadership skills under the given treatments.

<u>Alternative Hypothesis 4</u>: There is a statistically significant difference between the mean ranks of the Both and Control groups when asked to rate their leadership skills under the given treatments.

How others would rate their leadership skills questions.

5. What is the effect on Christian women when asked their gender, Christian affiliation, or both, before being asked what they believe others think about their leadership skills?

<u>Null Hypothesis 5</u>: There is no statistically significant difference between the mean ranks of the four groups – Gender, Christian Affiliation, Both, and Control – when asked how they believe others will rate their leadership skills under the given treatments.

<u>Alternate Hypothesis 5</u>: There is a statistically significant difference between the mean ranks of the four groups – Gender, Christian Affiliation, Both, and Control – when asked how they believe others will rate their leadership skills under the given treatments.

6. What is the effect of asking Christian women their gender before being asked what they believe others think about their leadership skills?

<u>Null Hypothesis 6</u>: There is no statistically significant difference between the mean ranks of the Gender and Control groups when asked how they believe others will rate their leadership skills under the given treatments.

<u>Alternative Hypothesis 6</u>: There is a statistically significant difference between the mean ranks of the Gender and Control groups when asked how they believe others will rate their leadership skills under the given treatments.

7. What is the effect of asking Christian women their Christian affiliation before being asked what they believe others think about their leadership skills?

Null Hypothesis 7: There is no statistically significant difference between the mean ranks of the Christian Affiliation and Control groups when asked how they believe others will rate their leadership skills under the given treatments.

Alternative Hypothesis 7: There is a statistically significant difference between the mean ranks of the Christian Affiliation and Control groups when asked how they believe others will rate their leadership skills under the given treatments.

8. What is the effect of asking Christian women their gender AND Christian affiliation before being asked what they believe others think about their leadership skills?

Null Hypothesis 8: There is no statistically significant difference between the mean ranks of the Both and Control groups when asked how they believe others will rate their leadership skills under the given treatments.

Alternative Hypothesis 8: There is a statistically significant difference between the mean ranks of the Both and Control groups when asked how they believe others will rate their leadership skills under the given treatments.

Career aspirations questions.

9. What is the effect on Christian women when asked their gender, Christian affiliation, or both, before being asked to rate their desire to advance in their careers?

Null Hypothesis 9: There is no statistically significant difference between the mean ranks of the four groups – Gender, Christian Affiliation, Both, and Control – when asked to rate their desire to advance in their career under the given treatments.

Alternate Hypothesis 9: There is a statistically significant difference between the mean ranks of the four groups – Gender, Christian Affiliation, Both, and Control – when asked to rate their desire to advance in their career under the given treatments.

10. What is the effect of asking Christian women their gender before being asked to rate their desire to advance in their careers?

Null Hypothesis 10: There is no statistically significant difference between the mean ranks of the Gender and Control groups when asked to rate their desire to advance in their career under the given treatments.

Alternative Hypothesis 10: There is a statistically significant difference between the mean ranks of the Gender and Control groups when asked to rate their desire to advance in their career under the given treatments.

11. What is the effect of asking Christian women their Christian affiliation before being asked to rate their desire to advance in their careers?

Null Hypothesis 11: There is no statistically significant difference between the mean ranks of the Christian Affiliation and Control groups when asked to rate their desire to advance in their careers under the given treatments.

Alternative Hypothesis 11: There is a statistically significant difference between the mean ranks of the Christian Affiliation and Control groups when asked to rate their desire to advance in their careers under the given treatments.

12. What is the effect of asking Christian women their gender AND Christian affiliation before being asked to rate their desire to advance in their careers?

Null Hypothesis 12: There is no statistically significant difference between the mean ranks of the Both and Control groups when asked to rate their desire to advance in their career under the given treatments.

<u>Alternative Hypothesis 12</u>: There is a statistically significant difference between the mean ranks of the Both and Control groups when asked to rate their desire to advance in their career under the given treatments.

Methodology

Having a clear grasp of the methodology theories guiding how the research will be done is essential to understanding the accepted procedures and guidelines for the work.

Research Methodology Theory

The goal of this research was to determine if there was a causal relationship between activating stereotype threat and the subject's personal view of their leadership skills, how they believe others would rate them, and their aspirations to advance their careers. Since a causal relationship was being explored, the epistemological theory of knowledge known as positivism was used. Positivism seeks

> to explain and predict what happens in the social world by searching for regularities and causal relationships between its constituent elements. Positivist epistemology is in essence based upon the traditional approaches which dominate the natural sciences…the growth of knowledge is essentially a cumulative process in which new insights are added to the existing stock of knowledge and false hypotheses eliminated. (Burell & Morgan, 1979)

The methodology for the research was a nomothetic approach. The nomothetic approach uses the scientific method, which focuses "upon the process of testing hypotheses in accordance with the canons of scientific rigor" (Burell & Morgan, 1979). In the scientific method, the researcher constructs an observation regarding the world and asks a question. Then, the researcher forms a hypothesis and a prediction about the observation. Finally, the researcher tests the hypothesis and uses the results to form new hypotheses or predictions.

Personal Standpoint

In Chapter 1, I shared my experiences as a fundamentalist Christian and female mathematician. As such, I have experienced stereotypes regarding my social groups from multiple standpoints. I was raised a Christian and gave my life to Jesus at the age of 14. As a fundamentalist Christian, I believe that women should not have certain leadership roles over men in worship. In the past, I have extended that belief to any role as a leader, even though Scripture does not state that specifically. I believe it has affected my advancement in leadership roles throughout my life. Once I realized that women can be leaders outside of worship, about 10 years ago, I took on more leadership roles at work. Through those experiences, I have learned that I have a gift for leadership, and I plan to continue to take on more leadership roles outside of worship. As I completed this study, it was imperative that I kept my experiences and possible biases in check, so that I did not let them affect how I conducted the research. I needed to be sure that at all points I was objective, whether that be in constructing the surveys, the data collection, analyses or in the conclusions drawn.

Site and Participant Selection

In order to examine the effects of stereotype threat in Christian women in higher education, a quantitative study was performed using a set of two surveys sent to women in higher education in various institutions throughout Michigan. This study was done via email; therefore, no physical site was needed. The sample for the study was voluntary, so participants self-selected in a manner of speaking.

The Institutions and Emails

In order to gain access to as many women in Michigan higher education as possible, the study began by contacting the MI-ACE Women's Network (Michigan American Council of

Education) to obtain permission to disseminate the first of the two surveys to the organization's chapters. The MI-ACE Women's Network is a network of chapters from colleges and universities throughout Michigan. The chapters are composed of women who are in administration or would like to be, as well as other women within the institution. Once permission was obtained from the Networks itself, the thirty-one secular institutions from the 2018-19 directory of the MI-ACE Women's Network were invited to participate in the study. Religious institutions were not included since the target group was women in leadership in secular institutions. This was done by emailing the Institutional Representative(s) for each of those institutions, explaining the study, and asking for their assistance in sending the survey request to their email lists.

Of those contacted, 17 were able to send out the survey email to their member lists. Those institutions that participated are listed with alphabetical code names in Appendix B, along with the number of people on their email list, the types of employees on their lists, and the number of responses.

Of course, since revealing the goal of the study would taint the results, the explanation was a general overview, stating that the surveys were regarding leadership and women in higher education. It included copies of the participant emails and asked the chapters if they would send it to their email lists. The email sent to them is in Appendix C. It included a link to the survey so the Institutional Representatives (IRs) could send it to their lists as soon as possible. The first survey due date was three weeks from the date of the initial email to the IRs. Some institutions sent the survey to their email lists immediately, while others took longer. In the case of one institution, they did not send it until two days before the due date. This, of course, affected the response rates for those institutions, but the timeline for the experiment could not be adjusted. Although it was stated by the home institution's IRB (Institutional Review Board) that IRB approval by the

institutions from which participants for the study were solicited was not necessary, four institutions requested IRB approval through their institution. Two of them were able to use the documents from the IRB procured from the home institution for this study, while the other two asked for their forms to be completed. One of the later was able to process it quickly, while the other stated it would take two weeks, which was after the due date for the survey. Therefore, that institution was not included in the study.

Those chapters that were able to participate sent the email, with a link to the screening survey, to all of those on their email lists. Those that voluntarily chose to participate in the study clicked on the link in order to complete the first survey.

Data Collection Timeline

The study was composed of two surveys; a screening survey and a treatment survey. The surveys were administered in Qualtrics with the following timeline.

June 20, 2019 - Sent an email to Institutional Representatives with the survey link.

July 2, 2019 - Sent a reminder to Institutional Representatives to send out a reminder to their lists.

July 9, 2019 - Deadline to have completed the first survey.

3 week waiting period

July 29, 2019 - Sent out the second survey directly to participants.

August 5, 2019 - Sent a reminder to participants.

August 8, 2019 - Sent second reminder to participants.

August 11, 2019 - Deadline to have completed the second survey.

Screening Survey

The purpose of the first survey was to act as a screening mechanism. See Appendix D for a copy of it. In order to form treatment groups that were representative of the sample for the study, the treatment groups needed to be stratified. Therefore, a number of questions were asked to determine Christian or other religious orientation, how devout the religious person was, and race. Once the data was extrapolated, the respondents could then be stratified among the four groups. Also, to hopefully keep the respondents from knowing that the study was specifically about Christianity, questions about their beliefs regarding education and politics were included. All questions were required responses so that the needed information could be gathered. Even though the education and politics questions were not needed, it was important to include those as required responses as well so it would be consistent. If questions were not consistent, it could cause the respondents to think that the religious questions were the focus and therefore make them aware of the target population for the study. The following is a description of the responses to the survey. The education and politics questions are also included with an overall summary. The detailed tables for those two categories of questions can be found in Appendices F and G.

The Participants

Six hundred fifty-seven people responded to the screening survey. The vast majority of respondents were from the home institution of the research. Two were male and were therefore deleted from the survey because they did not qualify. Also, 57 of the respondents did not complete the survey and therefore were excluded from the study. This was due to two reasons. The first was because answers to the questions regarding religion were essential, so if they did not complete those questions, their data would be useless. The second was that even if they completed the religious questions, the last question was regarding race, which is an essential element in the study,

the purpose of which will be discussed shortly. Without that information it could affect the results; therefore, any that did not complete the survey were removed. Appendix E, Table 16, displays the extent to which those 57 participants completed the survey. One hypothesis for why participants may have stopped when they did could have been because of the next question they were asked; so those questions were included in the table in Appendix E. For example, four respondents stopped at the end of the section of religious questions. Is it possible they stopped because the next question was in regard to politics and they felt uncomfortable answering questions regarding that subject? The answer to that is not in the purview of this experiment, but could be the topic of further research at a later time.

As a note, four possible respondents missed the survey window and asked if they could take it. Due to the strict timeline, the survey was not reopened for them. This was to ensure that respondents had at least three weeks between surveys in order to give them time to forget the exact content of the questions that were asked in the first survey before taking the second survey. There was, of course, no guarantee that the respondents would forget, but giving a minimum 3-week separation would provide the best chance of that within the total study timeline.

Non-Religious Questions

Although the focus of this study is Christian women, a number of questions were asked regarding employment, education, and politics. The employment questions were helpful in understanding the entire population being studied, not just Christians. The education and politics questions, although not directly applicable to the study had interesting outcomes and are therefore included.

Employment Questions

The survey also determined their employment categories. The first employment question was in regard to full-time status. Of the 596 respondents, 524 were full-time employees. The next question was in regard to the type of job they held in their institution. Figure 2 shows the results for the questions.
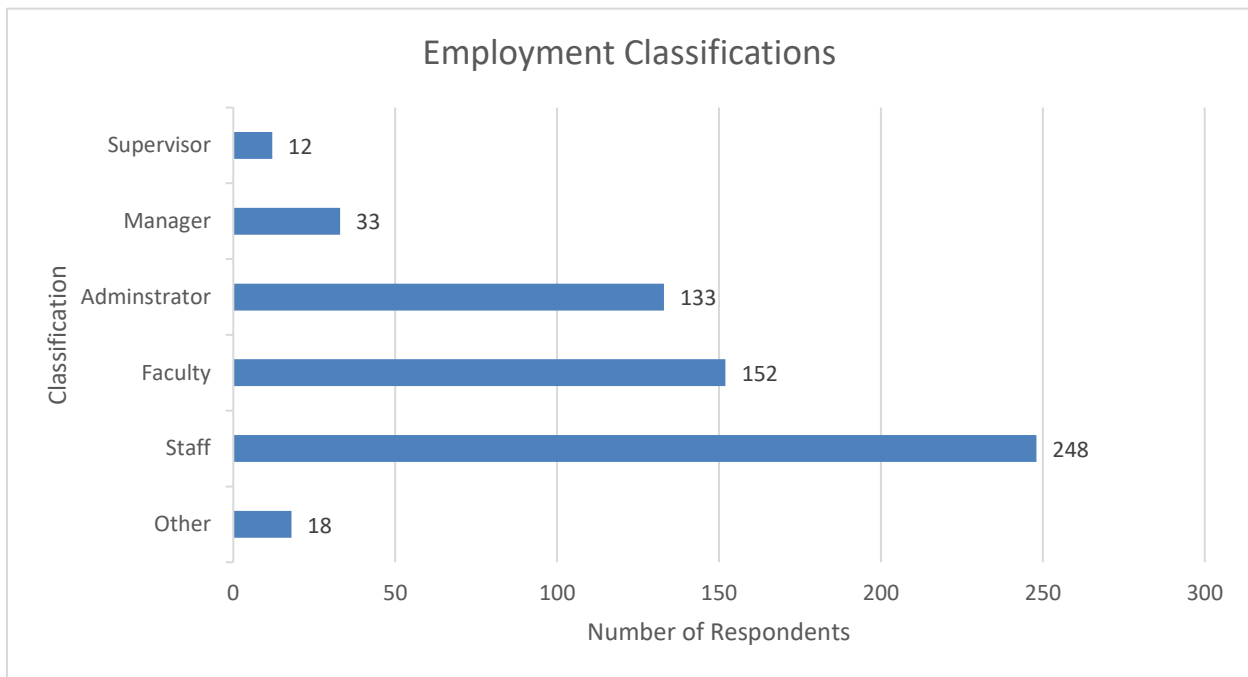
Figure 2. Employment Classifications – 596 Respondents

The surveys were given in the summer. Because of this, there was a real possibility that there were fewer faculty responses than if the surveys had been sent during the regular school year; however, as is seen in Figure 2, there actually was a good deal of faculty representation within the study. In fact, using the research home institution as an example, of the 7099 non-service or skilled craft employees, 35.4% were full- or part-time faculty (2018-19 Fact Book, n.d.). According to the survey results, 26.1% were faculty. However, some of those who identified as administration may

also be faculty, so the representation was more than likely higher. Therefore, the faculty representation was relatively good considering the time during which the survey was sent.

It is also important to note that some of the respondents were graduate assistants and post-doctoral employees. This came out in the text entered for those that listed "Other" as a response. It is also possible that some people who are in those two categories chose "faculty" because there was a teaching component to their duties, even if it was not the most accurate descriptor.

Education Questions

The next set of questions was in regard to the participants' thoughts regarding education. The purpose of including these questions was to attempt to disguise the real purpose of the survey – to determine their religious affiliation and habits. Although those questions were not integral to this study, the results have been presented in Tables 17 and 18 of Appendix F. The results were very typical of the way one would expect those in higher education to respond. Education was important to them and they believed it contributed to their current career in higher education. They tended to feel that students throughout Michigan were not receiving equitable educational experiences, and women and minorities were not appropriately represented in K-12 and higher education. There was an interesting average response to the question regarding whether they believed the employees of an institution should match the student population. The mean for the responses was 2.2 where responses ranged from 1 (strongly agree) to 5 (strongly disagree). This mean indicates that they did not have strong feelings regarding whether the employees should match the student body. Since this question came directly after the questions regarding women and minorities, it is expected that the context of the question would be in that vein. However, there is the possibility that participants did not realize that and may have responded with another context in mind.

Politics Questions

Tables 19 – 23, with the responses to the political questions, can be found in Appendix G. The majority of respondents were Democrats (354), and even more of the respondents stated that they vote in every election and primaries. As expected, almost every respondent stated that they plan to vote in the next presidential election (575 of the 596), most likely due to the politically charged atmosphere of the Trump administration. Again, as expected, responses to how they rated the political party system in the U.S. were mostly in the neutral to very low range. On average, the respondents believed that women are not appropriately represented in the political arena and they agreed that a woman should be president. The average response to the question regarding minorities and whether the U.S. political system gives them opportunities to advance in their careers was mild disagreement. Finally, they mildly agreed that the racial and gender makeup of elected officials should match the population they represent.

Devout Christians

In Chapter 1, Knowledge Network's Christian Survey was presented. This survey classified the 1000 Christian participants into five groups. See Appendix A for the chart of those classifications. For purposes of this study, only four of the characteristics were examined to determine if a participant was what will be termed a "devout Christian;" devout meaning they were devoted to their religion. Below is a list of all the questions from the screening survey that referred to religious affiliation and intensity. Notice that the questions referred to all religions, with the exception of "Do you believe salvation comes through Jesus Christ?" This was so that at a later time, other religions could be examined. Since not all respondents were Christians, those that listed a religion other than Christianity automatically skipped the question, "Do you believe salvation comes through Jesus Christ?"

Although there were a number of questions regarding religion in the survey, the four that were examined to determine if the respondent was a devout Christian were 15, 16, 17 and 19. Those questions can be seen in Appendix H with the indicated highlighting. If the respondent answered at least two of those questions in the green highlighted area they were considered a devout Christian. Since non-Christians were not given the salvation through Jesus question, they were considered devout if they answered at least two of the remaining three questions in the highlighted area.

In addition, it was theorized that those which would be most affected by the stereotype that Christians should not be leaders are those that either believe, have believed or were raised to believe that women should not be priests, ministers, or leaders in religious institutions. Therefore, the survey included a question regarding beliefs in that respect. Participants who answered question 21 with at least one of the yellow highlighted responses found in Appendix H were also equally distributed among the four groups. Responses marked "other' were included in this category as well if their text response indicated that they believe, have believed, or were raised to believe some or all types of leadership in the church should not be held by women.

Christian Question Results

The goal of this study was to examine the effects of stereotype threat on women and especially Christian women in higher education. In order to examine them, the screening survey was used to identify Christians; both those who are less devout and those who are more devout.

Religious affiliation. To begin, the survey asked their religious affiliation. Appendix I, Table 24, shows the results of that survey. As can be seen, the majority of the respondents were Christians, the next most selected choice was no religious affiliation, followed by

Secular/Agnostic/Atheist, Other, Jewish, Buddhist, Hindu, Muslim and Mormon. There were no Chinese Traditional.

Figure 4 in Appendix I shows the different text entries given for those that chose "other." Of those that entered text, the largest number wrote that they were spiritual, followed by Unitarian Universalist. The other responses can be seen in the figure.

Of the 596 respondents, 332 identified as Christians. Approximately one-third of them were Catholic, followed by non-denominational and then Baptist. See Table 25 in Appendix I for the specific breakdown in alphabetical order. Three respondents wrote the word "non" as their response. Since there was not a denomination of that name, it was surmised that they either mistyped none, or they were using shorthand for non-denominational. Since it was unclear what they meant, the response was given its own category. Another respondent stated that their denomination does not matter, and 10 said that they had no denomination.

Another interesting point was that the Quakers and Unitarian Universalists in the study were divided as to whether they were Christians or not. It appears that some Quakers and Unitarian Universalists believe they are Christians, while others do not. According to the Friends General Conference (n.d.) – a Quaker organization – Quakers have a deep Christian heritage and history, but not all present-day Quakers believe they are Christians. According to the Unitarian Universalists Association, their faith consists of a union of multiple religions and creeds. Therefore, a person can be a Unitarian and believe in Christianity or not (Sources of Our Living Tradition, 2019).

The rest of the respondents identified as either non-Christian or a combination of religions, including Christian. It was decided that those that identified as multiple religions would not be

included in the Christian category. For ease of use, those that did not identify as solely Christian are referred to in this research as non-Christian.

Devout vs. non-devout, Christians and non-Christians. In order to determine which respondents were devout and which were not, the responses to certain questions listed below were tabulated, and those that responded positively to at least two of them were considered devout. These questions were chosen because they elicit responses that would correspond to the categories in the Knowledge Network survey discussed in Chapter 1. This was also done for non-Christians in order to be consistent with the stratification of the treatment groups.

Salvation through Jesus Christ. This question was only given to those respondents who identified as Christians since those that did not would not have a belief in Jesus Christ as Savior. Note that there were two respondents who listed their religion as "other," but then wrote in the text field that they were a Christian denomination. Those respondents were moved to the correct Christian denomination for further analysis, but this means that they did not receive the question regarding salvation through Jesus Christ. Of the 330 Christians who received the question, 233 either agreed or strongly agreed that salvation comes through Jesus Christ. See Table 26 in Appendix I for further details.

Other religious questions. Tables 27 – 31 in Appendix I show the results of the remainder of the questions regarding religion. The responses seen in those tables are for Christians, and then for all respondents, respectively for each question. The questions include:

1. How often do you attend religious or worship services? (Table 27)

2. How often do you read or listen to the seminal readings regarding your religion? (Examples are the Quran, Torah, Mahayana Sutras, Bible, etc.)? (Table 28)

3. How many leadership or volunteer positions do you hold in your religious institution? (Table 29)

4. How often do you invest in personal religious faith development, such as individual study of seminal readings, reading supplemental books or documents regarding your religion, personal meditation regarding your religion, etc.? (Table 30)

5. Do you feel obligated to share your religious faith or beliefs with others? (Table 31)

In order to determine which respondents were devout and which were not, the responses to the salvation, services, seminal readings, and faith development questions were tabulated. Those that answered at least 2 of the 4 questions found in Tables 26 – 28 and 30 in the highlighted regions were considered to be devout. Keep in mind that those that did not identify as Christian did not get the question regarding salvation through Jesus Christ, but it was decided that answering 2 of the 3 remaining questions in the highlighted areas was used as the indicator of being a devoutly non-Christian, religious person. Finally, keep in mind that a large percentage of the non-Christians were agnostic/secular/atheist or had no religion, so they would not have qualified as devout in their religion since they had none. 189 of the 332 Christians were considered devout, while only 25 of the non-Christians were considered devout. Since all our categories – devout-Christians, non-devout Christians, devout non-Christians and non-devout, non-Christians – were all equally distributed among the treatment groups, distributions should be relatively equal, regardless of idiosyncrasies of the chosen categorization.

African Americans

During the development of this study, it was discovered through conversations with Black women that African American/Black, Christian women may covet positions of leadership in the church, in opposition to the premise of this study. Therefore, to allow for that, accommodations

were made to equally distribute those who identify as African American/Black among the four groups. To begin, the participants were asked to choose their race, with the ability to choose as many as they liked within the question. Due to the prevalent nature of stereotype threat, it was done at the end of the survey in order to keep their race from possibly becoming a stereotype threat activator and affecting their responses to the other questions. Appendix J displays the information gleaned from that question in Tables 32 – 34. As can be seen, the vast majority of respondents were White, followed by African American, and then by those that identified as multiple races. To address this issue in the study, the four groups were also assigned an equal number of randomly selected African American women, divided into devout and non-devout Christians and non-Christians. Within the stratifications listed above, the participants were randomly assigned to the four groups with the intent that it would create an equal representation of the different participants.

Beliefs Regarding Women in Religious Leadership and Stratification

In addition to devout/non-devout and African American/non-African American, the subject of beliefs regarding leadership in religious institutions needed to be addressed. This meant determining which of the respondents believe, previously believed, or were raised to believe that women should not be in leadership in religious institutions in one way or another. The question asking beliefs regarding women in leadership in religious institutions is below.

21. Which statements best fit your beliefs regarding women in religious institutions, such as churches, mosques, and temples? Click all that apply.

    a. I believe women should not be priests, ministers or leaders in religious institutions.

    b. I previously believed women should not be priests, ministers or leaders in religious institutions.

c. I was raised to believe women <u>should not</u> be priests, ministers or leaders in religious institutions.

d. I believe women <u>should</u> be priests, ministers or leaders in religious institutions.

e. I have no preference as to whether women should be priests, ministers or leaders in religious institutions.

f. Not applicable.

g. Other _____

There were 74 respondents who listed answers 1 through 3 as part or all of their responses to the leadership question. Any respondent who answered only a, b, and/or c, and not 4 or above, was included in the "no leadership" group since selecting only those choices implied there was a possibility that the stereotype of women not being in leadership was somewhere in their background and their view had not changed. Text responses were also included in this category if their text indicated they actually belonged in that group, even if they did not choose one of those responses. See Figure 5 in Appendix K for the 32 Christian respondents who shared these beliefs divided into the four categories regarding devout status and race.

In order to evenly distribute those with beliefs about women not being in leadership in the church, the 26 respondents who were Non-African American, devout Christians were equally and randomly assigned to the four groups. Then, the other participants were also randomly assigned to the four groups along with the others. Finally, those who had listed responses 1 through 3 and other responses which indicate their beliefs have changed, were randomly distributed with all others.

There were also thirty individuals who indicated that they were not strictly Christian or not Christian (called non-Christians), and also indicated that they believe, had believed, or were raised to believe women should not be in leadership in their religious affiliation. See Figure 6 in the same

appendix for the breakdown of the six respondents who only chose responses 1 through 3. They were also evenly distributed, as much as possible, among the four groups. The others were randomly assigned to all others.

Next, Christians and non-Christians, excluding the specifically no leadership respondents discussed above were equally and randomly assigned to the four groups according to the categorizations discussed above. See Figures 7 and 8 in Appendix K for the categorizations. Finally, totals for the four groups can be seen in Figures 9 and 10 in Appendix K.

Final Stratification Numbers

The final assignment numbers are in Table 1, including all respondents in their various categories as discussed previously.

Table 1

Number of Respondents Assigned to Each Treatment Group

Group Number/Name	Christian	Non-Christian
1/Gender	83	65
2/Christian Affiliation	84	66
3/Both	82	65
4/Control	83	67

Administrators, Managers, and Supervisors

Due to the complexities of the stratifications, it was too difficult to control how many administrators were randomly assigned to each group. For the most part, the distributions were even with the exception of Christian administrators in group 3 (See Table 2). Even with that discrepancy, a sufficient number of administrators were assigned to each group.

Table 2

Number of Administrators Assigned to Each Treatment Group

Group Number	Christian Administrators	Non-Christian Administrators
1	32	18
2	32	17
3	19	15
4	32	13

Waiting Period

Participants were given up to three weeks to complete the screening survey, the results of which were just discussed, depending on when the Institutional Representatives sent the email to their lists. After the first survey was completed by all participants who choose to do so, the survey link was broken and there was a waiting period of three weeks before sending a second email with the treatment survey. The waiting period was established to reasonably assure participants did not remember the specific questions asked in the screening survey.

Treatment Survey

The second survey email came directly from the experimenter rather than the Institutional Representatives. The email can be seen in full in Appendix L. The email was sent with the treatment survey link that connected them to the appropriate treatment group's survey.

Each of the four stratified groups had different introductory questions in the second survey, therefore the email had a different survey link for each of the four groups. When they clicked on the survey link, it took them to one of 4 groups.

1. Group 1 was asked their gender before completing the rest of the survey.

2. Group 2 was asked if they were a Christian and if so, what denomination.

3. Group 3 was asked both the gender and Christian affiliation questions.

4. Group 4, the control group, was asked neither question.

See Appendix M for the details of the four treatment surveys. The participants were given two weeks to complete the second survey.

The survey itself asked the women to rate their leadership skills, what they believed others think about their leadership skills, whether they were interested in advancing in their career, and questions about opportunities in leadership. The results of the first three questions were then examined to determine if asking them either gender, Christian affiliation, or both, affects how they rated themselves, believed others would rate them, or their aspirations to advance in their careers. If they rated these questions lower, then perhaps stereotype threat affected how they felt about their leadership skills and aspirations.

Although the questions regarding equity in leadership were not directly related to the study, the results of those questions can be seen in Appendix N, Table 35. Since the responses of "other" and "I don't know" were not levels on the Likert scale those responses were removed when calculating means. Note that in all questions that asked them to rate the leadership opportunities for religious people, there were a great many respondents who did not know how to answer them. In all questions except "Rate the opportunities for Christians compared to non-Christians," the average response was that the opportunities for the religious group were less than that of others. See the table for further clarification.

Participants in each survey were entered into two $100 gift card drawings, depending on how many portions they completed. After the study was completed the participants who desired to know were told what the study was about and given a summary of the results.

Anonymity vs. Confidentiality

Since the first survey responses were used to determine which treatment group the participant was in and then an email was sent to each participant according to the group they were assigned to, it was impossible to make the surveys anonymous. However, the data were kept confidential in that their personal information during the course of the study or subsequent to it would not be shared in any way. In addition, the researcher avoided looking at both the email address and responses to the survey questions at the same time whenever possible, in order to keep their identities separate from their responses. Finally, once the second study was completed, the emails were replaced by a code within the data source. Of course, the emails of those who agreed to be interviewed later were kept, but they were not associated with their survey responses.

Data Security

To collect the data, the researcher's password-protected, student email address was used. All survey results were kept within the survey software (Qualtrics) until such time as it was downloaded onto a password-protected laptop for analysis. While the data were being analyzed, the data in the survey software was retained. The data downloaded to the laptop were also be kept on OneDrive in a password-protected account. Any hard copies, if printed, were kept in a locked file cabinet or security box. Once the study was completed the data in the survey software were removed.

Validity and Generalizability

External validity, or generalizability, was achieved because the sample came from a number of institutions in Michigan. This increased the sample numbers compared to doing the experiment at only one institution. It also brought a number of different types of institutions into the study, making the results more generalizable. Therefore, repeating the experiment in this

geographical region should produce similar results. However, because the study was limited to institutions in a Midwestern state, this means that generalizability might be limited to women in leadership in this geographical region only. For example, if the experiment were done in the Bible belt, the results could be different. Results from this study will need to be looked upon with that limitation in mind.

Screening Survey

Face validity was all that was needed for both surveys. The screening survey was used to determine whether the participant was devout, whether they were Christian or not. The Christian section of questions was inspired by a survey of over 1000 Christians done in 2006 (Lee, 2007). Since that was the only portion of the survey other than gender and race that was used for evaluation, there was no need to look at the political and educational questions for validity. Face validity was achieved because the survey questions were tailored to the applicable characteristics of a devout Christian (See Appendix A). For example, one characteristic of a devout Christian is that they are committed worship service attenders. The survey question used – seen below – specifically asked how often they attend worship services.

16. How often do you attend religious or worship services?

a. Daily

b. More than once a week but less than 7 days per week

c. 3-4 times per month

d. 1-2 times per month

e. Less than once per month

f. Never

g. Not applicable

The original treatment survey for the religious portion was also given to a group of about 12 people to gain feedback on the questions and to determine the length. Suggestions were considered and included when appropriate and the time for the survey was no more than three minutes for the vast majority of the survey takers. The survey was also given to other people to determine the length, and their time to complete was approximately two minutes. Since the initial survey was created, a question regarding beliefs about women leaders in the church was added along with a few other questions in all categories. With those and the informed consent section added to the survey, the time was extended to approximately 10 minutes.

Treatment Survey

The treatment survey was intended to determine four things; how the participants rated their leadership skills, how they thought others would rate their leadership skills, their aspirations for advancement, and their beliefs regarding equity in leadership opportunities. The survey questions were exactly that, therefore the survey was doing what was needed. For example, the goal of the question below was to determine how they rated their leadership skills and it does exactly that. For this reason, the surveys met face validity.

7. How would you rate your leadership skills?

    a. Excellent

    b. Above average

    c. Average

    d. Below average

    e. Poor

The Experiment and Internal Validity

The experiment itself hinged on activating stereotype threat in the participants and then asking them to rate their leadership, how they believed others would rate them, and their aspirations for advancement. To increase the validity of the experiment both internal and external validity was addressed.

Internal validity was achieved in several ways. First, because the participants did not know what the experiment was about, they could not change their responses due to that influence. This was achieved by the addition of the political and educational questions in the screening survey in order that participants wouldn't know that they were actually being measured on Christian activities and gender. It was also achieved by keeping the true purpose of the experiment a secret. Second, internal validity was achieved within the groups by two methods. There was a control group so that comparisons could be made for each of the treatments, and the four groups were stratified so that each group had a similar number of participants in the different categories. This helped to make sure the results were more accurate. Finally, internal validity was achieved because the causal relationship was very precise. Each group was simply asked their gender, their Christian affiliation or both before doing the survey. This kept causality very limited and eliminated confounding variables.

<center>**Data Analysis**</center>

In order to do the analysis, certain decisions had to be made. Below is the power analysis to determine how many responses were needed, and the decisions regarding which analysis instrument to use.

Power Analysis

In order to determine how many respondents were needed for the treatment survey in order to gain optimal statistical results, a power analysis was completed using the power test program G*Power. To complete the power analysis the following criteria were used; an ANOVA analysis, $\alpha = 0.10$, power 0.95, 3 degrees of freedom, and effect size of 0.25. ANOVA was chosen because more than two groups were being compared. The alpha of 0.10 was chosen since it is a typically
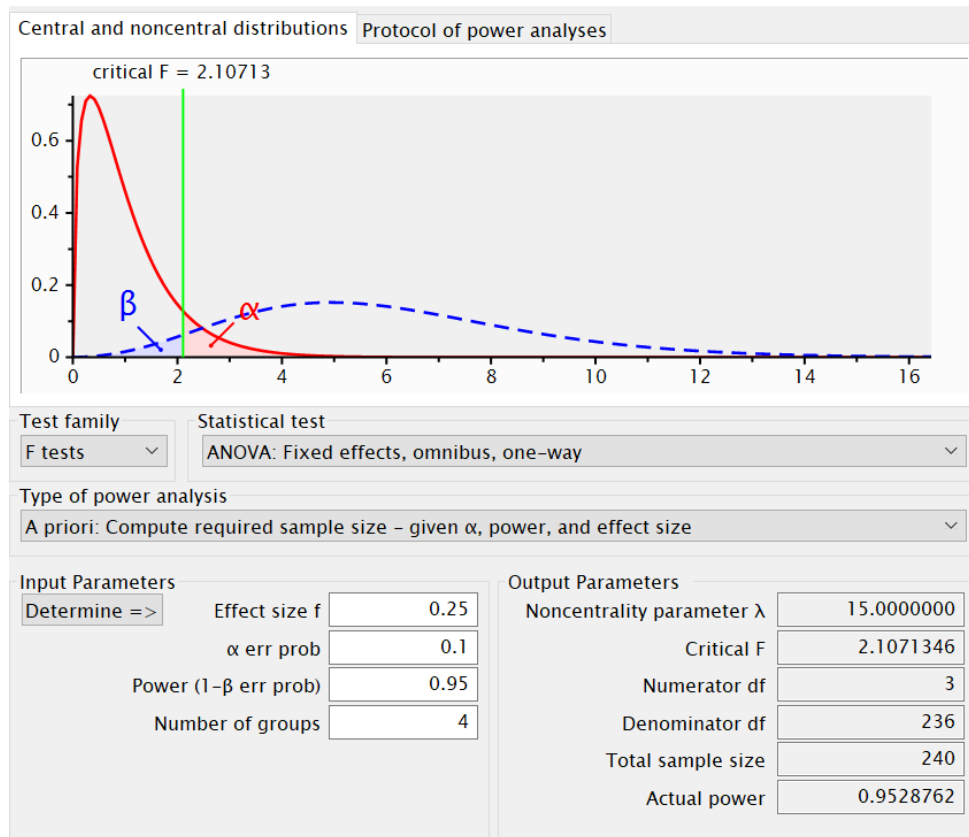
Figure 3. Power Analysis

used criterion for statistical research in education and represents the probability of rejecting the null hypothesis when the null hypothesis is actually true. That type of error is called a Type I error. A power of 0.95 was chosen. That is the probability of rejecting the null hypothesis when it is actually false, which is the desired outcome. Three degrees of freedom was chosen since there were four groups and degrees of freedom is one less than the number of groups in this type of

analysis. The effect size of 0.25 is considered a medium effect size. Effect size is a measurement of how important the difference in means is in the analysis. The result of the power calculation was that a minimum of 240 total responses was needed. That number was more than reached with the respondents to the second survey. See Figure 3 for the results of the power analysis.

Normality and Choice of Test

Once the data were obtained, the choice of test needed to be made. In respect to all three questions, tests for normality were run to determine which analysis should be performed. Because it was important that the same test was used whenever possible, the tests for normality were looked at individually and then as a whole, in order to determine the best analysis method for all three questions. For the sake of simplicity, the following abbreviations were used.

1. How would you rate your leadership skills? – Rate-Yourself

2. How do you believe others would rate your leadership skills? – Rate-Others

3. How interested are you in advancing your career in higher education? – Career Aspirations

Rate-Yourself question. In the case of the Rate-Yourself question, the normality tests revealed that normality could not be attained. This was due to multiple factors. First, both the Kolmogorov-Smirnov and Shapiro-Wilk tests for normality revealed that normality was not attained ($p = .000$ for all four groups and for both types of tests). Also, in the skewness and kurtosis analysis, it was found that zSkew and zKurt were not within the accepted tolerance of ± 3.29 for group 4 (*zSkew* = 4.955 and *zKurt* = 10.263). However, Levene's test of equality of variances was met with all *p*-values greater than .05. See Tables 36 – 38 in Appendix O for the SPSS analysis tables.

Although the Kolmogorov-Smirnov and Shapiro-Wilk could not necessarily be adjusted to create normality in those tests, it was determined that if the skewness and kurtosis tolerances could be met, then ANOVA could possibly be used. To attempt to correct the issues of non-normality in the skewness and kurtosis values, it was found that a suspected outlier existed. In all four groups, only one participant rated themselves as poor in leadership skills. An analysis in SPSS showed that this participant was considered an outlier, so they were removed. See Figure 11 in Appendix O for the box and whisker plot that shows the outlier. So, the analysis was recalculated without this outlier. Although skewness and kurtosis tolerances were now met, Levene's test for equality of variances was no longer met, with the p-values based on mean and trimmed mean both below .005. See Tables 39 and 40 in Appendix O for the adjusted statistics.

Rate-Others question. In the case of the Rate-Others question, the normality tests revealed that the data was not normal, but to a lesser extent. First, both the Kolmogorov-Smirnov and Shapiro-Wilk tests for normality revealed that normality was not attained ($p = 0.000$ for all four groups and for both tests). However, in the skewness and kurtosis analysis, it was found that zSkew and zKurt were within the accepted tolerance of ± 3.29. Levene's test of equality of variances was met with all p-values greater than .05. See Tables 41 – 44 in Appendix O for the SPSS analysis tables. When the possibility of outliers was investigated, there were no outliers found. See Figure 12 for the box and whisker plot regarding outliers. Although ANOVA could have possibly been used for this analysis, since it only failed one test type, it is important to be consistent in the analyses done across all questions being studied. Therefore, the three questions will be approached in the same way.

Career aspiration's question. When investigating the Career Aspirations question, it was found that this data also was non-normal. First, both the Kolmogorov-Smirnov and Shapiro-Wilk

tests for normality revealed that normality was not attained ($p = 0.000$ for all 4 groups and for both tests). Second, although all skewness and kurtosis z-scores for individual groups were within tolerances ($p \leq \pm 3.29$), the skewness of the data as a whole did not meet tolerances ($p = 5.773$). Finally, Levene's test of equality of variances revealed that there was equality of variances since $p \geq 0.05$ for all cases. See Tables 44 – 46 in Appendix O for the exact statistics.

As a result of these tests, it was determined that an examination of possible outliers that might be distorting the data would be done. In Figure 13 of Appendix O, it can be seen that there were 6 outliers in the initial test. To determine if these outliers might be causing the non-normality of the data, they were removed, and another check of outliers was completed. In the second iteration of this test, it was found that there were 6 more outliers (See Figure 14 in Appendix O). Due to the continuation of outliers, it was determined that it would be too difficult to remove all outliers. Therefore, although the a priori power analysis had assumed ANOVA, the pursuit of using ANOVA was abandoned.

Chosen Test of Analysis

Since it was difficult to obtain some semblance of normality for two of the three questions, the non-parametric version of an ANOVA, called Kruskal-Wallis, was investigated as a possibility. First, since the responses were on an ordinal Likert Scale, it met the ordinal assumption. Second, there were four groups, which met the three or more groups assumption. Third, it met the independence of observations assumptions, since there was not any relationship between groups or participants in each group. Finally, the shape of the distributions in each group for each question was relatively the same. See Figures 15 – 17 in Appendix O for the histograms for the different groups and questions. Since these assumptions were met, it was determined to complete a Kruskal-Wallis analysis.

CHAPTER 4: RESULTS

The first three chapters of this dissertation have addressed an overview of the research, the literature regarding stereotypes and stereotype threat, and the procedure used for the study. This chapter will cover the results of the study and answers to the research questions. For purposes of the hypothesis questions, the group names will be repeated here.

1. Group 1 – Gender (This group was only asked their gender.)

2. Group 2 – Christian Affiliation (This group was only asked their Christian affiliation.)

3. Group 3 – Both (This group was asked both their gender and their Christian affiliation.)

4. Group 4 – Control (This group was asked neither their gender nor their Christian affiliation.)

Participant Comments

Two of the participants in the first survey emailed stating they felt uncomfortable taking a survey about religion, or religion and work, and therefore they did not complete the survey. Another participant did not complete the survey because they felt that some of the questions were not worded well. Specifically, some of them began with "Do you feel" or Do you believe" and then would ask the participant to rate using a Likert scale from strongly disagree to strongly agree. They felt that it would cause them to possibly misrepresent themselves in their responses and so chose not to complete it. A number of those asked to do the survey were retired (one for 10 years) and another was about to retire. They did not do the survey. One retired between the two surveys.

Descriptive Statistics

Table 3 displays the descriptive statistics for all three questions. The original data set contained 470 respondents of both Christian and non-Christian affiliations. Non-Christians (This

included those that identified as Christian and at least one other religion) were removed to meet the criteria for the research that the participants should be Christians. Non-Christians can be examined in later research. This left 272 Christian respondents. For the Career Aspirations questions, there were four respondents that chose the response of Other. Since this is not an ordinal response, those participants were not included in the analysis. There was also one participant who did not complete that question. That left a remainder of 267 respondents for that particular question.

Table 3

Descriptive Statistics for All Three Questions

Question	N	Mean	Std. Deviation	Minimum	Maximum
Rate-Yourself	272	2.27	.624	1	5
Rate-Others	272	2.22	.664	1	4
Career Aspirations	267	2.00	.930	1	5

For the Rate-Yourself question, there was only one respondent who listed "poor" as the rating of their leadership skills. When tested, this response was considered an outlier, but since a Kruskal-Wallis test was used for the analysis, the outlier did not need to be removed. The Rate-Others question had no "poor" responses.

There were only three respondents who listed extremely uninterested when asked: "How interested are you in advancing your career in higher education?" Once investigated, it was found that all three of these responses were considered to be outliers; however, they were not the only outliers. There were three others. Again, since Kruskal-Wallis was used, they did not need to be removed.

Table 4 displays the frequencies of the responses to the question "How would you rate your leadership skills?" It was interesting to note that very few respondents chose the responses "below average" or "poor." Over 90% of respondents chose "average" or "above average," with approximately twice as many rating themselves as "above average."

Table 5 displays the frequencies for the Rate Others question. This question asked them "How do you believe others would rate your leadership skills?" As can be seen in the table, more respondents rated themselves as "excellent" than in the Rate-Others question, and fewer rated themselves as "above average" or "average" (86.8%). Also, notice that no participants chose the rating of "poor."

Table 4

Rate-Yourself Question Frequencies

Response	Frequency	Percent	Cumulative Percent
Excellent	20	7.4	7.4
Above Average	164	60.3	67.6
Average	84	30.9	98.5
Below Average	3	1.1	99.6
Poor	1	0.4	100.0
Total	272	100.0	

The final frequencies table (Table 6) was in relation to the Career Aspirations question, which asked, "How interested are you in advancing your career in higher education?" The five missing responses can be seen in the frequency column. 74.7% of responses expressed that they were

Table 5

Rate-Others Question Frequencies

Response	Frequency	Percent	Cumulative Percent
Excellent	32	11.8	11.8
Above Average	151	55.5	67.3
Average	85	31.3	98.5
Below Average	4	1.5	100.0
Poor	0	0.0	100.0
Total	272	100.0	

"extremely interested" or "interested" in advancing their careers. Only 21 of them were either

"uninterested" or "extremely uninterested" in advancing their careers.

Table 6

Career Aspirations Question Frequencies

Response	Frequency	Percent	Cumulative Percent
Extremely interested	88	32.4	33.0
Interested	115	42.3	76.0
Neutral	43	15.8	92.1
Uninterested	18	6.6	98.9
Extremely uninterested	3	1.1	100.0
Total	267	98.2	
Missing	5	1.8	
Total	272	100.0	

In summary, the vast majority of respondents believed they were at least above average in

leadership, they felt others believed the same, and they were interested in advancing their careers.

Very few believed they were below average or poor, or believed others would rate them as below

average or poor; and very few did not want to advance their careers. The skewing of this data toward the positive range was one of the factors that made this data non-normal. For the percentages for each rating according to treatment group, see Tables 47 – 49 in Appendix P. The skewedness of the data can be seen in those tables, as well.

First Impressions

In Table 7 are the number of subjects, means, and standard deviations for all three groups, separated by question. Notice that for the Rate-Yourself and Rate-Others questions, the mean of the control groups was the highest (1 was "excellent" and 5 was "poor"), then the next highest were the Gender groups and the Christian Affiliation groups with relatively similar means, and finally with the lowest means were the Both groups. In other words, a lower score represents stronger perceptions and higher aspirations. At face value, this seems to support the postulated theory that when one stereotype is activated the participants rated lower, and when multiple stereotypes were activated the stereotype threat was compounded and they rated even lower. However, it remained to be seen if this theory held up to statistical scrutiny.

Table 7

Descriptive Statistics for All Three Questions

	Rate-Yourself			Rate-Others			Career Aspirations		
Group Number/Name	N	Mean	SD	N	Mean	SD	N	Mean	SD
1/Gender	61	2.26	.656	61	2.23	.668	58	2.02	.964
2/Christian Affiliation	82	2.23	.615	82	2.21	.698	81	1.93	.959
3/Both	69	2.42	.579	69	2.38	.621	68	2.01	.837
4/Control	60	2.15	.633	60	2.07	.634	60	2.07	.972
Total	272	2.27	.624	61	2.23	.668	267	2.00	.930

Central Question

The central question for this study was, "What effect does stereotype threat have on perceptions of leadership in Christian women in higher education?" This question was examined when gender and/or Christian stereotypes were activated. To examine them, the research sub-questions were addressed one by one. As each one is addressed in this document, the sub-question will be listed. See Chapter 3 for the questions in hypothesis form, if desired.

Research Questions 1 – 4

The general hypotheses for these four research questions posited that there was a significant difference in the means of the responses when asked to rate their leadership skills. All comparisons were done using an educational research accepted value of $\alpha = .10$ for significance. The first research question was "What is the effect on Christian women when asked their gender, Christian affiliation, or both, before being asked to rate their leadership skills?" When comparing all four treatment groups in the Kruskal-Wallis analysis, there was a statistically significant, but weak, effect between Christian women in the four groups – Gender ($M = 2.26$, $N = 61$, $SD = 0.656$), Christian Affiliation ($M = 2.23$, $N = 82$, $SD = 0.615$), Both ($M = 2.42$, $N = 69$, $SD = 0.579$), and Control ($M = 2.15$, $N = 60$, $SD = 0.633$) – when asked to rate their leadership skills under each group's treatment. The Kruskal-Wallis statistics were $\chi^2(3, N = 272) = 8.206$, $p = .042$, $\varepsilon^2 = .03$. Table 8 shows the results of the Kruskal Wallis analysis.

Table 8

Kruskal-Wallis Test Statistics for Rate-Yourself Question

Statistics	Rate-Yourself
Kruskal-Wallis H	8.206
Degrees of Freedom	3.000
Asymptotic Significance	0.042

Once the overall research question for all four groups was completed and it was seen that there was significance, post hoc pairwise analyses were completed to compare the permutations of pairs of the four groups. The purpose of this exercise was to pinpoint the case or cases that made the difference in mean ranks significant for the 4 groups. It was found that of the three permutations of pairs of groups, only the Both and Control group pair had a significant difference in mean ranks. Below are the specifics of the analysis results, and the statistics can be seen in Table 9.

Research question 2 asked, "What is the effect of asking Christian women their gender before being asked their perception of their leadership skills?" The hypothesis was that there is a statistically significant difference between the mean ranks of the gender and control groups. When comparing the Gender ($M = 2.26$, $N = 61$, $SD = 0.656$), and Control ($M = 2.15$, $N = 60$, $SD = 0.633$) groups in a Kruskal-Wallis post hoc pairwise test there was not a statistically significant difference between Christian women in those groups when asked to rate their leadership skills under the given conditions ($\chi^2(1, N = 121) = 14.617$, $p = 1.0$). Since this was a Kruskal-Wallis post hoc analysis, the p-value was adjusted using Bonferroni correction (See Table 9).

Research question 3 asked, "What is the effect of asking Christian women their Christian affiliation before being asked their perception of their leadership skills?" When comparing the Christian Affiliation ($M = 2.23$, $N = 82$, $SD = 0.615$) and Control ($M = 2.15$, N = 60, $SD = 0.633$) groups in a Kruskal-Wallis post hoc pairwise test there was not a statistically significant difference between Christian women in the two treatment groups when asked to rate their leadership skills under the given conditions, ($\chi^2(1, N = 142) = 13.961$, $p = 1.0$). Since this was a Kruskal-Wallis post hoc analysis, the p-value was adjusted using Bonferroni correction (See Table 9).

The last research question in this group asked, "What is the effect of asking Christian women their gender AND Christian affiliation before being asked their perception of their

leadership skills?" When comparing the Both ($M = 2.42$, $N = 69$, $SD = 0.579$) and Control ($M = 2.15$, $N = 60$, $SD = 0.633$) groups in a Kruskal-Wallis post hoc pairwise test there was a statistically significant, moderate effect between Christian women in the two treatment groups when asked to rate their leadership skills under the given conditions ($\chi^2(1, N = 129) = 33.985$, $p = .028$, $\varepsilon^2 = .066$). Since this was a Kruskal-Wallis post hoc analysis, the p-value was adjusted using Bonferroni correction (See Table 9).

Table 9

Kruskal-Wallis Pairwise Test Statistics for Rate-Yourself Question

Group Pair	Test Statistic	Adjusted Significance
Gender and Control	14.617	1.000
Christian Affiliation and Control	13.962	1.000
Both and Control	33.985	0.028

Research Questions 5 – 8

The general hypotheses for the next set of research questions state that there is a significant difference in the means of the responses when asked how they believe others would rate their leadership skills. All comparisons were done using an educational research accepted value of $\alpha = .10$ for significance. The fifth research question was "What is the effect on Christian women when asked gender, Christianity, both, or neither before being asked how they believe others think about their leadership skills?" When comparing all four treatment groups in the Kruskal-Wallis analysis, there was a statistically significant, but weak effect between Christian women in the four groups – Gender ($M = 2.23$, $N = 61$, $SD = 0.668$), Christian Affiliation ($M = 2.21$, $N = 82$, $SD = 0.698$), Both ($M = 2.38$, $N = 69$, $SD = 0.621$), and Control ($M = 2.07$, $N = 60$, $SD = 0.634$) – when asked to rate how they believe others would rate their leadership skills under

each group's conditions. The Kruskal-Wallis statistics were $\chi^2(3, N = 272) = 7.693$, $p = .053$, $\varepsilon^2 = .028$. Table 10 shows the results of the Kruskal-Wallis analysis.

Table 10

Kruskal-Wallis Test Statistics for Rate-Others Question

Statistics	Rate-Others
Kruskal-Wallis H	7.693
Degrees of Freedom	3.000
Asymptotic Significance	0.053

Next, post hoc pairwise analyses were completed to compare the permutations of pairs of the four groups. This was done in order to pinpoint the case or cases that made the difference in mean ranks significant for the four groups. It was found that of the three permutations of the pairs of groups, only the Both and Control group pair had a significant difference in mean ranks. Below are the specifics of the analysis results, and the statistics can be seen in Table 11.

Research question 6 asked, "What is the effect of asking Christian women their gender before being asked how they believe others think about their leadership skills?" The hypothesis was that there is a statistically significant difference between the mean ranks of the gender and control groups. When comparing the Gender ($M = 2.23$, $N = 61$, $SD = 0.668$), and Control ($M = 2.07$, $N = 60$, $SD = 0.634$) groups in a Kruskal-Wallis post hoc pairwise test there was not a statistically significant difference between Christian women in the two treatment groups when asked how they thought others would rate their leadership skills under the given conditions ($\chi^2(1, N = 121) = 18.301$, $p = .910$). Since this was a Kruskal-Wallis post hoc analysis, the *p*-value was adjusted using Bonferroni correction (Table 11).

Research question 7 asked, "What is the effect of asking Christian women their Christian affiliation before being asked how they believe others think about their leadership skills?" When

comparing the Christian Affiliation ($M = 2.21$, $N = 82$, $SD = 0.698$) and Control ($M = 2.07$, $N = 60$, $SD = 0.634$) groups in a Kruskal-Wallis post hoc pairwise test, there was not a statistically significant difference between Christian women in the two treatment groups when asked how they thought others would rate their leadership skills under the given conditions, ($\chi^2(1, N = 142) = 16.828$, $p = .950$). Since this was a Kruskal-Wallis post hoc analysis, the p-value was adjusted using Bonferroni correction (Table 11).

The last research question in this group asked, "What is the effect of asking Christian women their gender AND Christian affiliation before being asked how they believe others think about their leadership skills?" When comparing the Both ($M = 2.38$, $N = 69$, $SD = 0.621$) and Control ($M = 2.07$, $N = 60$, $SD = 0.634$) groups in a Kruskal-Wallis post hoc pairwise test there was a statistically significant, moderate effect between Christian in the two treatment groups when asked how they thought others would rate their leadership skills under the given conditions ($\chi^2(1, N = 129) = 34.318$, $p = .034$, $\varepsilon^2 = .063$), Since this was a Kruskal-Wallis post hoc analysis, the p-value was adjusted using Bonferroni correction (Table 11).

Table 11

Kruskal-Wallis Pairwise Test Statistics for Rate-Others Question

Group Pair	Test Statistic	Adjusted Significance
Gender and Control	18.301	.910
Christian Affiliation and Control	16.828	.950
Both and Control	34.318	.034

Research Questions 9 – 12

The final set of questions was in regard to the participants' career aspirations. The general hypotheses state that there is a significant difference in the means of the responses when asked

about their career aspirations. All comparisons were done using an educational research accepted

value of α = .10 for significance. The ninth research question was "What is the effect on Christian

women when asked gender, Christianity, both, or neither before being asked to rate their desire to

advance in their career?" When comparing all four treatment groups in the Kruskal-Wallis

analysis, there was not a statistically significant difference between Christian women in the four

groups – Gender (M = 2.02, N = 58, SD = 0.964), Christian Affiliation (M = 1.93, N = 81,

SD = 0.959), Both (M = 2.01, N = 68, SD = 0.837), and Control (M = 2.07, N = 60, SD = 0.972) –

when asked to rate how they believe others would rate their leadership skills under each group's

conditions. The Kruskal-Wallis statistics were χ^2(3, N = 267) = 1.375, p = .711. Table 12 shows

the results of the Kruskal-Wallis analysis.

Table 12

Kruskal-Wallis Test Statistics for Career Aspirations Question

Statistics	Career Aspirations
Kruskal-Wallis H	1.375
Degrees of Freedom	3.000
Asymptotic Significance	0.711

Because there was not a statistically significant result for the Kruskal-Wallis analysis of

this question, the pairwise comparisons are not necessary. However, to answer the research

questions, they were run in order to complete the reporting. For all three research questions, "What

is the effect of asking Christian women their gender before being asked to rate their desire to

advance in their career?," "What is the effect of asking Christian women their Christian affiliation

before being asked to rate their desire to advance in their career?," and "What is the effect of asking

Christian women their gender AND Christian affiliation before being asked to rate their desire to

advance in their career?," the adjusted significance values were $p = 1.000$ ($\chi^2(1, N = 118) = -4.329$,

$\chi^2(1, N = 141) = -12.489$, and $\chi^2(1, N = 148) = -.900$, respectively). Therefore, for research

questions 10 – 12, listed above, there was not a statistically significant difference between groups

when a pairwise comparison was done. See Table 13 for individual statistics.

Table 13

Kruskal-Wallis Pairwise Test Statistics for Career Aspirations Question

Group Pair	Test Statistic	Adjusted Significance
Gender and Control	-4.329	1.000
Christian Affiliation and Control	-12.489	1.000
Both and Control	-0.900	1.000

Conclusion

This chapter specifically addressed the results of the analysis in regard to the 12 research

questions put forth in Chapter 3. Results varied according to the groups and the questions being

asked of the participants. The analyses revealed some meaningful significances. In particular, there

were significant results between all groups, as well as the Control and Both groups in the questions

for which participants were asked to rate themselves and how they believed others would rate

them. In Chapter 5, these results will be discussed, and possible strategies for addressing these

results will be examined.

CHAPTER 5: DISCUSSION AND SUMMARY

The purpose of this study was to examine stereotype threat theory and the effects of stereotype activation on Christian women in higher education. Although a great deal of research has been done on stereotype threat and its deleterious effects on those who suffer from it, no research has been performed on Christian women and leadership in secular higher education. The goal of this study was to add to the overall research on stereotype threat and extend it to a far too neglected group of women.

In Chapter 1, the story of this researcher was shared; her experiences, stereotypes, and self-perceptions as a devout Christian woman and mathematician. Next, the definition of stereotypes was explored, along with the typical stereotypes of women in leadership and Christians. This was followed by a discussion of stereotype threat and its effects. All of this was in an effort to explain the desire of this study to examine how stereotype threat might affect Christian women in higher education.

The next section of Chapter 1 was an overview of the study itself. This included the central question and the twelve sub-questions grouped according to the survey question they addressed. A discussion of the theories that were used to frame the work ensued. These theories included stereotype threat, feminism and role congruity theory of leadership. As a group, they gave weight and purpose to this effort to determine the effect of stereotype threat on these women.

In Chapter 2, a review of the literature was completed. This review included the definition and history of stereotypes and stereotype threat. It then explored the voluminous research done on the subject by the father of stereotype threat, Claude Steele, as well as others. Then followed a review of experiments which exhibited the conditions, risk factors and mediators of stereotype threat, as well as its effects.

Chapter 3 included a detailed description of how the experiment was carried out. It described the series of two surveys that were done; one to screen the participants and another to perform the actual treatment of activating stereotype threat and elicit responses to questions about leadership. The power analysis that determined how many participants would be needed for significance, as well as a description of the decision process that led to using a non-parametric test for analysis due to the non-normality of the data, was also found in that chapter. In addition, results of the survey that did not directly affect the study were shared, such as the responses to the education and politics questions.

Chapter 4 rounded out the work to this point by sharing the results of the Kruskal-Wallis test, along with the post-hoc pairwise comparisons that were completed when significance was found in the Kruskal-Wallis results. These tests were done on three of the questions from the survey; "How would you rate your leadership skills?" "How do you believe others would rate your leadership skills?" and "How interested are you in advancing your career in higher education?" The other questions in the survey are planned to be investigated in later research.

Summary of Results

The results of the analysis are important in terms of the effects of stereotype threat and women in higher education and leadership. The central question of the study was "What effect does stereotype threat have on perceptions of leadership in Christian women in higher education?" To address this question the problem will be divided into two portions. The first are survey questions 1 and 2, which are:

1. How would you rate your leadership skills?

2. How do you believe others would rate your leadership skills?

These two questions had very similar statistical results, so addressing them at the same time is appropriate. The next portion to be examined is the third survey question:

3. How interested are you in advancing your career in higher education?

The statistical results for this question were very different and so they will be addressed separately. Before continuing, as a reminder, the four treatment groups were:

1. Group 1 – Gender (This group was only asked their gender.)

2. Group 2 – Christian Affiliation (This group was only asked their Christian affiliation.)

3. Group 3 – Both (This group was asked both their gender and their Christian affiliation.)

4. Group 4 – Control (This group was asked neither their gender nor their Christian affiliation.)

Survey Questions 1 and 2

According to the results of the Kruskal-Wallis analysis, both questions 1 and 2 had significant differences between mean ranks across the four treatment groups when using $\alpha = .10$ ($\chi^2(3, N = 272) = 8.206$, $p = .042$, $\varepsilon^2 = .03$ and $\chi^2(3, N = 272) = 7.693$, $p = .053$, $\varepsilon^2 = .028$, respectively). Upon further inspection it was found that the pair of groups for both survey questions that created the significance in the Kruskal-Wallis was the Both and Control groups ($\chi^2(1, N = 129) = 33.985$, $p = .028$, $\varepsilon^2 = .066$ and $\chi^2(1, N = 129) = 34.318$, $p = .034$, $\varepsilon^2 = .063$, respectively). What this meant was that when both gender and Christian Affiliation were asked of the participants, there was a significant difference in how the participants rated themselves in leadership skills, as well as how they believed others would rate them. Hence, when gender and Christian affiliation were asked, respondents rated themselves lower on both their own opinion of their leadership skills and how they believed others would rate them in regard to leadership

skills. This result is very similar to the results obtained in Tine and Gotlieb's experiment (2013)

in which they primed participants by saying that there are differences in performance between

multiple social groups, and they found that there was only an effect when the participant was a

member of all three groups.

Survey Question 3

In sharp contrast, the results of the analysis of survey question 3 were very different. In

this case, there was no significant difference in the mean ranks for the four groups ($\chi^2(3,$

$N = 267) = 1.375, p = .711$). This meant that whether the participants were asked their gender,

Christian affiliation, or both, there was no statistical difference in how they responded when

asked to rate their desire to advance in their careers. In fact, when examined further, there was no

statistical difference in any of the group pairs, either.

Conclusions

Let's examine this effect in detail. To begin, a review of the means of the different groups

for the first two questions would be helpful. Table 7 has been repeated here for convenience.

Table 7

Descriptive Statistics for All Three Questions

Group Number/Name	Rate-Yourself			Rate-Others			Career Aspirations		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
1/Gender	61	2.26	.656	61	2.23	.668	58	2.02	.964
2/Christian Affiliation	82	2.23	.615	82	2.21	.698	81	1.93	.959
3/Both	69	2.42	.579	69	2.38	.621	68	2.01	.837
4/Control	60	2.15	.633	60	2.07	.634	60	2.07	.972
Total	272	2.27	.624	61	2.23	.668	267	2.00	.930

Survey questions 1 and 2. Notice that the control group had the highest mean rating for

questions 1 and 2 – 2.15 and 2.07, respectively. Next, the Gender and Christian affiliation groups

had very similar, but lower means – 2.26 and 2.23 compared to 2.23 and 2.21, respectively. Finally,

the lowest ratings occurred when the participants were asked both their gender and their Christian

affiliation first – 2.42 and 2.38, respectively.

According to Steele and Aronson (1995), the effect of stereotype threat can be rather

small. In one of Steele's experiments, the effect was only 1/3 of a letter grade. In fact, in some

cases, just choosing a slightly different cut off for statistical analysis can change the results from

significant to non-significant, such as in the case of Stricker and Ward's (2004) vs. Danaher and

Crandall (2008) on women and the AP exam, discussed in Chapter 2. It appears that this may

have happened in this case. When participants were asked only gender or Christian affiliation

they did, on average, rate themselves lower than the control group, but not enough to be

statistically significant. However, when stereotypes were compounded, and they were asked both

gender and Christian affiliation, the difference then became significant. This parallels the results

found in Tine & Gotlieb's research discussed in Chapter 2.

What does all of this mean for the analysis? In the study performed by Rydell,

McConnell, and Beilock (2009), female college students' negative performance when their

gender stereotype threat was activated, was negated when the stereotype that college students are

good at math was also activated. In other words, one negative stereotype was neutralized by a

positive stereotype. It is, therefore, possible that if two negative stereotypes are activated within

one person, the effects could be compounded. The overall hypothesis of this study postulated that

asking one demographic (gender or Christian affiliation) would activate stereotype threat and

therefore decrease the participant's ratings; and that, in turn, asking both would decrease their

ratings even further. Although not fully, the results of this study in regard to the first two survey questions appear to support the compounding theory.

Survey question 3. In the case of the third survey question, "How interested are you in advancing your career in higher education?" the results were very different. The Control group actually had the lowest mean rating. Then came the Gender and Both groups, followed by the Christian Affiliation group. Since these means are not significantly different, and together there appears to be no pattern, no conclusions can be made from the data, except the following; there is no evidence in this study to support the theory that stereotype threat negatively affects the desire of Christian women to advance in their careers. However, it is interesting to note that the lowest ratings regarding career aspirations were in the control group where neither gender nor Christian stereotypes were activated.

The central question. So, how did these results answer the central question of this study, "What effect does stereotype threat have on perceptions of leadership in Christian women in higher education?" It appears that stereotype threat, when compounded with multiple negative stereotypes made Christian women rate themselves lower in regard to leadership skills and in how they believe others would rate them, while it had no apparent effect on their career aspirations. If they are affected in this way, then perhaps these less positive views of their leadership are affecting their performance in leadership areas; whether that is when applying and interviewing for a job in leadership, or during the daily performance of their duties.

Theory Regarding why the Data was Skewed

The data in all cases were skewed toward higher responses, such as agree and strongly agree. This may have been due to the fact that many of the surveys went to administrators, faculty, and staff who had attended events held by the chapters of the MI-ACE Women's Network at their

respective institutions. Since this network targets women in administration and those that would like to be, the events they hold may tend to be about leadership. Therefore, those that attend events may well think of themselves as at least comparable, if not better, at leadership than typical faculty, staff, and administrators in higher education. Although this may be the case, it is also possible that, in general, employees in higher education think of themselves as better in leadership qualities.

Lessons Learned

If repeating this study or portions of it at a later time, a number of changes would need to be made to make it more effective. First, some method to connect the two surveys anonymously and automatically would be very beneficial. This would allow those who did not take the survey because they knew their responses were not anonymous to participate. It would also allow the connection of surveys to be done more easily. Since this was impossible in this study, a great deal of time was used connecting surveys, since although participants were asked to use the same email address, some forgot which one they had used on the first survey. In some cases, participants had to be contacted to solicit other email addresses they may have used in order to connect them.

Expanding the employment category question to include more categories would be essential. Categories to include would be graduate assistant, post-doctoral student, student, staff and faculty, director, and possibly others. This would allow for segregating the data more appropriately for the target population.

A longer period of time between surveys may allow participants to more fully forget the questions on the first survey. Although this should not have had an effect on the results of the second survey, since stereotype threat is situational and the situation changed between surveys, it could possibly help to separate the topics in both surveys more completely.

Allowing for more time when asking institutions to participate would also be helpful. Then, any IRB's for those institutions could be acquired. It would also give those institutions who were contacted more time to consult with any entities that they needed permission from.

In the second survey, groups were not asked their race. Also, some groups were not asked their religious affiliation. Since these demographics were used to analyze the data, that information needed to be mined from the first survey. To avoid this situation, asking race and religious affiliation at the end of the surveys in which it was not a stereotype threat activator would be appropriate. However, to keep participants from going back to previous questions and possibly changing their responses after stereotype threat may have been activated, it would be essential to construct the survey in such a way that the participants could not go back after answering those questions.

Recommendations

"The importance of promoting more women into leadership roles is greater than just fulfilling the promise of equal opportunity and making businesses, institutions, and governments more representative. Evidence is clear that fostering full participation for women is important for promoting a prosperous and civil society" (Hoyt & Murphy, 2016, p. 387). Our institutions of higher education are places in which our future leaders are molded. In order for our society to become a place of complete equality, our institutions need to portray an environment of equity. When our young women see institutional leaders who are predominantly men, it sends a message that men are more appropriate for leadership roles, when in actuality that is not the case.

Transformative Leadership

Transformative leadership theory is based on a number of tenets. The theory rests on a desire to bring about deep and equitable change, an equitable distribution of power, and a focus on

equity and justice among others (Shields, 2016). Empowering others is also a tenet of the theory. Giving people the tools or the freedom to rise to new levels in their lives allows them to rise to greater levels of achievement. Allowing women and Christians the opportunity to compete on an equal footing with those who are in the powerful majority also gives them the chance to obtain their dreams.

This research regarding stereotype threat and the hopeful increase of representation of women, and particularly Christian women, in higher education leadership, is best served by a transformative lens. Empowering women to obtain higher levels of leadership will bring about long-needed equity in representation. Many of those in leadership may be content with the status quo, in which, for example, "women only hold 30 percent of presidencies across all institutions of higher education" (Johnson, 2017, p. 11). "Those who are already successful may be content to ignore, or even to perpetuate, inequity in the name of preserving their own social or economic benefit." (Shields, 2016, p. 92); however, ignoring the underrepresentation of such a large population has only negative effects on the institution, since their viewpoint is not properly represented. Using the lens of transformative leadership will lead institutions toward equity for all.

The following recommendations are given in an effort to empower these Christian women, as well as all people who suffer from stereotype threat, to overcome its effects, excel in their chosen careers, and ultimately become leaders in higher education. Keep in mind that stereotype threat has been proven for multiple social groups in multiple settings; therefore, applying these recommendations to all social groups who suffer from negative stereotypes in these situations is completely appropriate.

Recommendations for Hiring

"…most, if not all, employers are sophisticated in avoiding explicitly sexist related behavior in hiring practices" (Bergeron, Block, & Echtenkamp, 2006). Nguyen & Ryan (2008), when investigating for their meta-analysis, found that subtle cues caused more stereotype-threat than blatant or moderate cues, but when attempting to reverse the effects of stereotype threat, blatant methods were more effective. Therefore, removing any subtle forms of stereotype activation using more aggressive methods should remove many of the effects of stereotype threat, since if the cue is not there, stereotype threat cannot happen. In response to this, the following recommendations are made for hiring practices.

Human Resources and hiring committees. Training in stereotype threat is essential for hiring committees and Human Resources. Both need to be made aware of the phenomenon and its effects, as well as methods to reduce it in the hiring process. This can be done in conjunction with implicit bias and equity training. A good program would include methods for avoiding the activation of stereotype threat in their language, actions, and in their written materials. It would include what to do, as well as what not to do. A specific example would be in teaching them how to pay a compliment. For example, telling a woman that she looks nice, or complimenting her makeup or hair, may make them think about their gender, and in turn, possibly bring about stereotype threat. Another example would be asking a woman about her children or family. There is a stereotypically traditional view that women take care of the children and therefore may not be able to meet the requirements for a position as well as a man. Perhaps because it is thought they are dividing their time between family and work, or the job would come second to family (Monroe, Ozyurt, Wrigley, & Alexander, 2008). Bringing up children or family, even in casual conversation, can again bring their gender to the forefront and therefore possibly trigger stereotype threat.

Job postings and applications. Job postings must be written in a way that does not promote stereotypes. As seen in Chapter 1, leadership positions can often be seen as agentic in characteristics; such as being assertive, independent, courageous, intelligent, or masterful (Litmanovitz, 2010; Rudman & Phelan, 2008). If a job posting is written with these agentic traits in mind, it could bring about stereotype threat. For example, if a woman (or Christian woman) reads a job posting that displays agentic characteristics and then they work on a cover letter or resume after reading it, they may think less well of their leadership skills and therefore not promote themselves as well as they could have.

As can be seen in the results of this present study, just asking more than one stereotype-threat-inducing, demographic question can make women think less of their leadership skills. Therefore, removing demographic questions from the beginning of an application, but most effectively from the entire application, can help eliminate the effects of stereotype threat. Demographic questions typically seen on an application which could activate stereotype threat include ethnicity/race, disability, gender, birthdate, current salary, and more. Even asking their name can induce stereotype threat, if it is a stereotypical name with negative connotations. Therefore, it is recommended that even names be removed from the beginning of the application process.

Interviews and negotiations. In the next step of the hiring process – the interview – additional strategies can be used to minimize stereotype threat. First, create an identity-friendly atmosphere in the location where the interview will occur. Rios, Cheng, Totton, and Shariff's (2015) work regarding Christians' beliefs about their science skills and Cheryan, Plaut, Davies, & Steele's work (2009) which studied the environment and stereotype threat for computer science students, found that the environment can cause decreased performance and lower career

aspirations. Therefore, removing items that might activate stereotype threat and replacing them with items that are stereotype neutral can lead to better interviews for those who may be sensitive to stereotype threat in the given domain. In fact, this should be done in all common areas in a business or department within an institution of higher education. This would not only create an identity safe environment for hiring purposes, but it would also create that atmosphere for current employees, and even students who come to the department for various reasons.

Shantz and Latham (2012), discussed previously, studied the interview and negotiation performance of women and men. Before a negotiation exercise in one of their experiments,

> half of the pairs were told that success in the exercise generally translates into success in overall classroom performance (threat condition) and the other half were told that success in the exercise did not correlate with success in the classroom. Simply labeling the negotiation as diagnostic of a person's effectiveness improved men's ability to negotiate, but hindered women's performance at the bargaining table. (p. 3)

Kray, Thompson, and Galinsky (2001) also found that women did less well when their stereotype was made salient. Therefore, being deliberate in efforts to reduce stereotype threat, even in the case of negotiations, would bring about greater equity for Christian women.

Recommendations for Leaders with Their Employees Throughout Their Careers

Since we know that stereotype threat affects people of all walks of life, it can easily rear its head in the workplace. "The potential for stereotype threat exists any time employees' beliefs about the particular traits needed for good job performance are linked to stereotyped groups" (Roberson & Kulik, 2007, p. 30). This means that employees can be affected by it in many situations, including ones in which administrators do not perceive a reason for the effect. Since those who experience this threat do not even realize it is happening it can be difficult to determine when it is occurring. Therefore, the most effective method to combat it is preplanning for the possibility that it could happen. By remaining cognizant of the effects and proactively avoiding

stereotype threat activators, those in leadership can pave the way for others to succeed. When employees feel they are valued and negative stereotypes are not acceptable in the work environment, employees can feel empowered to grow, to take on more leadership responsibilities, and pursue careers in leadership.

"Research on stereotype threat has shown that societal stereotypes can have a negative effect on employee feelings and behavior, making it difficult for an employee to perform to his or her true potential…When stereotype threat is present, performance declines" (Roberson & Kulik, 2007, p. 25). Since it occurs most often when the employee is invested in the task at hand, administrators, supervisors, and managers will have to be diligent in regard to monitoring employees and their investment in difficult tasks. When this effect has the potential to occur, strategies to reduce stereotype threat should be implemented in advance of the assignment. Roberson & Kulik (2007) outline a number of strategies to assist with reducing stereotype threat. Below is an overview of those strategies as well as additional sources to assist in the process.

Discuss stereotypes and stereotype threat with employees openly. Acknowledge the issue and have conversations regarding it (Roberson & Kulik, 2007, p. 36). This will help both leaders and employees to recognize when it might occur and then empower them to implement their own strategies for combatting it. As recommended in regard to hiring committee training, this can be done in combination with conversations about social justice, inclusion, and diversity. Shields states in her book, *Transformational Leadership* (2016), that

> conversations about inclusion and justice cannot be left to the end of a busy agenda; they must not be displaced by an 'important' policy discussion or a 'critically important' request from a superintendent, and so on. It must be apparent from the outset that the goal of equitable transformation is not confined to empty words but is a concrete goal that is held front and center in the mindset of everyone in the school. (p. 163)

The importance of the conversation must be apparent to all. Purposeful time spent discussing stereotypes and their effects can work to minimize stereotype threat and bring awareness to all employees and leaders. Also, openness and honesty in facing issues that affect the minoritized help all involved feel accepted, heard, validated, and appreciated.

Another type of conversation that can be helpful is simply talking about present projects, company life, and the challenges thereof. Steele, in *Whistling Vivaldi* (2010, 160-161), discusses students who had late-night talk sessions about life in college with members of multiple identity groups. These types of talks, or narratives, provide opportunities to share the good and bad in life. They give coworkers the realization that they have more in common than they have differences. It also allows them to see that everyone has challenges in the work environment regardless of their identity group or groups, and it gives them the opportunity to brainstorm and receive advice from colleagues regarding those challenges.

> Creating…identity-safe environments involves assuring individuals that their stigmatized social identities are not a barrier to success in targeted domains— that is, assuring individuals that they are welcomed, supported, and valued whatever their background. Identity-safe environments challenge the validity, relevance, or acceptance of negative stereotypes linked to stigmatized social identities. Thus, the most effective identity-safe environments will not only be able to cope with primed stigmatized social identities—they will embrace them. (Markus et al., 2002; Steele, 2002; Steele et al., 2002. As quoted in Davies, Spencer & Steele, 2005, p, 278)

Next, when assigning a task, remove the relevance of stereotype to the task at hand. Steele (2010) and Roberson & Kulik (2007), discuss this technique in both of their writings. Statements could take the form of "Men and women do equally well on this assignment," "Race does not affect performance on this task," "People who are in competitive environments do equally well," and so forth. Their evidence shows that statements of this nature appear to remove the threat felt.

Leaders who want to create motivation for their followers or employees, even in the face of substandard results can use constructive criticism. When using this technique, make sure the employee understands that there are high standards, but the leader knows that they can meet those standards. Let them know that the criticism given is meant to assist them in meeting those standards (Steele, 2010, p. 163). This type of criticism can be used in any situation, regardless of whether the person is facing stereotype threat, because it is an effective way to help employees be motivated to work harder and more effectively; first, by confirming faith in their abilities and second, by giving them the tools to improve their work.

In group project situations, there should never be only one person of a particular identity or social group assigned to the team. This can sometimes be difficult to accomplish, especially in small departments or companies; but if it is, it will help to create what Steele calls critical mass in the situation. Critical mass refers to having enough people of a particular identity group in a situation, so they no longer feel like a minority (2010, p. 135).

Also, leaders can uplift positive role models through mentoring, networking and professional development. They can create mentoring pairs, even if they are not in the same identity group, to give employees opportunities to discuss stereotypes in private and receive advice regarding how to cope with them. Of course, that will not happen in most instances without appropriate training of mentors and mentees regarding stereotype threat.

Networking with others can create a similar effect. This can be done within the organization if it is large, or it can be done with other organizations outside the company. If done outside the company, leaders should strive to make sure that the networking events are diverse. In fact, they could possibly discuss stereotyping and its effects as part of the event.

Finally, professional development can assist with this effort. Leaders can provide specific training, some of which has been mentioned before, to give employees the tools to overcome its effects.

> Not only will reducing stereotype threat improve the performance of members of stereotyped groups, but it will do so by also unlocking latent ability that was previously hidden. Unlocking this ability will allow institutions and society as a whole to tap into unrecognized potential. Simply put, organizations that create identity-safe environments will be more productive and efficient than those that do not. (Spencer, Logel & Davies, 2016).

By instituting these types of policies, employees will feel accepted, valued, and empowered to excel in their careers; thereby increasing the number of capable women, and Christian women, in leadership in higher education.

Recommendations for Personally Reducing Stereotype Threat

Christian women, and non-Christian women, in higher education, can apply positive methods to themselves in numerous ways. One of them is to create an environment in their personal office in which they celebrate the positive attributes of their identity group. That can be in the way they decorate, or in displaying positive affirmation statements. Some example statements are "Embrace your femininity." "I am proud to be a woman." "I am assertive, but care for others as well." And "I will bring my best characteristics as a woman to my work today."

They can also spend time each day reminding themselves of the positive attributes they have as women and Christians, and why they are advantages. One example is in extolling the benefits of being more community-driven if that is a characteristic they have. Being community-driven in a working environment is an advantage in that it brings ownership to all employees since they are working as a team. Creating a sense of community within the team can lead to higher productivity.

They can also dispel stereotypes when the opportunity arises in conversations with their employees as well as with other leaders. This means having the courage to stand up in situations where stereotypes are affecting their morale as well as that of others. When doing this they must be authentic and respectful in order to have the most positive reception. Pointing out instances where negative stereotypes might be in play, intentionally or non-intentionally, may take courage, but the potential benefits are worth any discomfort that might be felt.

Finally, they can find positive role models and mentors who have similar identity groups to themselves. Reynolds-Dobbs, Thomas and Harrison state in their article, *From Mammy to Superwoman: Images That Hinder Black Women's Career Development*, that "Individuals, especially other Black women outside the organization, can give Black women a fresh perspective on their work situation and can understand what they are going through as Black women" (2008, p.145). This strategy can be applied to any woman. When women have mentors in positions similar to themselves or in higher-level positions, who are a part of the same identity group, they can learn how to combat its effects, how to be successful as a member of that identity group, and be encouraged when stereotype threat is present.

All in all, Christian women in higher education have multiple strategies with which to combat stereotype threat. With intentional use, these methods can greatly reduce the effects and allow women to obtain maximum productivity in the workplace. In turn, it will allow them to excel and gain higher levels of leadership within the institution. The methods discussed above are just a taste of how stereotype threat can be reduced or removed in the situations in which they occur. With appropriate forethought and planning, the effects of stereotype threat can be minimized or completely offset.

Implications for Further Research

Stereotype threat in Christian women in secular higher education and leadership must be further researched. First, to validate the results of this study, the experiment should be replicated by performing the experiment with a comparable group of Christian women. It is also suggested that the study be completed with Christian women in secular institutions across the United States to determine if similar results would be obtained independent of geographical area and percentage of devout Christians in each area. In order to determine if the effects translate to other negative stereotypes, it would also be beneficial to complete similar studies with reference to race, socioeconomic status, and others.

It could also be beneficial to limit the participant pool to administrators, managers, and supervisors in order to determine if the results would differ depending on the job category. Since those in administration may have a higher opinion of their leadership skills, they may have more domain identification and therefore be more negatively affected by stereotype threat.

A closer analysis of the responses to the career aspirations question may also be helpful in determining why the results for that question differed so much from the others.

It is also suggested that the data from this experiment be further studied to see if there was an effect on the other leadership questions asked in the survey. Those questions asked participants to rate the opportunities for various genders and religious groups compared to other groups. It might be helpful to determine if stereotype threat affected the responses to those questions as well.

An investigation of the effect of race on the responses of the participants in this study is also suggested. As discussed in Chapter 3, it is possible that African American Christian women might have rated themselves differently than non-African Americans when exposed to stereotype threat.

Since in many experiments involving stereotype threat, the activator for the threat is something more substantial than just asking a demographic question, it is suggested that the experiment be repeated using more significant activations such as having them watch stereotypical commercials about women in leadership or read an article regarding the agentic stereotype of leadership.

Finally, another useful variation of the experiment could be to activate another negative stereotype. Perhaps asking race before the other questions instead of at the end could show if the effects would be even more pronounced when Christian affiliation, gender and race stereotypes are all activated. If this is the case, then what would happen to subjects if they were exposed to even more negative stereotype threat activators. For instance, when completing the demographic section of an application for a job, a job seeker may be asked their gender, race, age, previous salary, and disabilities. If they are asked all of these questions or more before completing the rest of the application, or before completing a test of capabilities, how would activating that many negative stereotypes affect their responses and/or performance? Further research is needed.

Conclusion

Through this study, Christian women in Michigan institutions of higher education have been shown to be negatively affected by stereotype threat when asked more than one stereotypical demographic. Specifically, when asked just one demographic – gender or Christian affiliation – the mean of the ratings of their leadership skills and how they believe others would rate their leadership skills decreased slightly, but not in a statistically significant manner. However, when asked both of these demographics, ratings decreased even further to a statistically significant level. Therefore, not only did Christian women think less of their own leadership skills, but they also believed that others thought less of them.

This research provides compelling evidence that Christian women who are affected by stereotype threat think less of themselves in terms of leadership. Previously, little to no research had been done on women or Christians in secular higher education in regard to leadership stereotype threat. This research adds significantly to the existing pool in a supportive manner. It supports the existence of stereotype threat and extends the effects to these social groups. In the past, very few experiments had been performed in which the participants were only asked to identify themselves as part of a social group. This study also adds to the results for that type of stereotype threat activation.

The results of this study beg that every effort to alleviate the effects of stereotype threat should be made. In the case of higher education, those changes can be made in the form of hiring processes, as well as how employees are treated, encouraged, and empowered. As a result, they will have increased performance and job satisfaction. This, in turn, allows them to excel in their careers and strive to higher levels of employment attainment and leadership. Creating an atmosphere where this portion of the population is empowered to leadership is an endeavor that is beneficial for individuals, higher education, and our society as a whole.

APPENDIX A

Types of Christians and Characteristics

Table 14

Types of Christians and Characteristics

Type of Christian	Percent	Characteristics
Active Christians	19%	Believe salvation comes through Jesus Christ
		Committed churchgoers
		Bible readers
		Accept leadership positions
		Invest in personal faith development through the church
		Feel obligated to share faith - 79% do so
Professing Christians	20%	Believe salvation comes through Jesus Christ
		Focus on a personal relationship with God and Jesus
		Similar beliefs to Fundamental Christians, different actions
		Less involved in church, both attending and serving
		Less commitment to Bible reading or sharing faith
Liturgical Christians	16%	Regular churchgoers
		High level of spiritual activity mostly expressed by serving in the church and/or community
		Recognize the authority of the church
Private Christians	24%	Believe in God and doing good things
		Own a Bible, but don't read it
		Spiritual interest, but not within the church context
		Only about a third attend church at all
		Almost none are church leaders
Cultural Christians	21%	Little outward religious behavior or attitudes
		God aware, but little personal involvement with God
		Do not view Jesus as essential to salvation
		Affirm many ways to God
		Favor universality theology

APPENDIX B

Institutions Responding to the First Survey

Table 15

Institutions Whose Employees Responded to the First Survey

Institution	Number Emailed	Administration	Faculty	Staff	Surveys Competed
A	1483	X	X	X	82
B	Small Number		X		11
C	110	X	X	X	32
D	90	X	X	X	26
E	31	X			10
F	1****		X		1
G	24	X	Maybe 1	X	5
H	70	X	X	X	22
I	100	X	X	X	39
J	At least 40	Unknown	X	X	28
K	1			X	1
L	53	X	X	X	6
M	14	X			2

N	38	X	X	X	5
O	35	X	X	X	12
P	Unknown	Unknown	Unknown	Unknown	2
Q	1300	X	X	X	77
R**	1	X			1
S	3625	X	X	X	222
T***	NA	X	X	X	14

*At this institution, one person sent to 11 people who have networks for faculty and staff, who in turn may or may not send it out to their networks. At least one person with 30 people on their list sent it out.

**Only the Institutional Representative that received the request completed the survey. It is possible they did not send the survey out to anyone in their institution.

*** Some respondents did not use their work email address. An attempt was made to learn which institution they worked for, but some did not respond, so it was impossible to tell which institution they worked for.

****These respondents were graduate students in the institution with the most respondents when the first survey went out. When they actually did the survey, they were employees of other institutions.

APPENDIX C

Email to IRs with Email to Members

Email to IRs

Subject: Women and Leadership in Higher Education Study – Dissertation Assistance Requested – Time Sensitive Information

Dear MI-ACE Women's Network Institutional Representatives,

My name is Kim Morgan and I am a member of the Wayne State University chapter of the MI-ACE Women's Network, previous Institutional Representative, and present member of the Professional Development Committee of the Women's Network. I am also a doctoral student, and, with the permission of the MI ACE Women's Network, I am writing to request your assistance with my dissertation study that examines women and leadership in higher education.

The study consists of two surveys on women and leadership, the first of which I am asking select MI ACE Women's Network chapters to send out, and the second of which I will send to those individuals who respond to the first survey. Would you be willing to send my first survey email to your member list? If so, the survey deadline for respondents is July 9, 2019, so please send it out at your earliest opportunity. The survey should take participants approximately ten minutes to complete and will help me to determine how participants will complete the second phase of the study. Participants who complete this first phase of the study will be included in a $100 gift card drawing.

The email I would like you to send is below this email and includes the link to the survey. To send, simply remove this portion of the email, change the salutation, and forward to your email list. Again, please send the email as soon as possible to give your members as much time as possible to respond; and let me know by June 26 as to whether you sent the first survey to your

members. If you would, also let me know the makeup of your member list; in other words, is it made up of all women in administration, only those who request to be added to the list, all women in your institution, or some other variation. Also, if you will, I would also like you to send the email again a few days before the due date. I will send a reminder email at that time. Finally, if it would be useful to you, let me know and I would be pleased at the conclusion of the study to send a summary to you, and, if desired, discuss the conclusions with you via email or phone. Thank you for your consideration of this request. Have a wonderful day.

Thank you,

Kim Morgan

Doctoral Candidate

Wayne State University

Email to Send to Members

This was put within the email sent to the IRs. Then the IRs would send this to their members.

Subject: Dissertation Survey Assistance Requested – $100 Gift Card Drawing - Complete by July 9, 2019

Dear Members,

Please see the email below which is from one of our fellow members of the MI-ACE Women's Network who is working on her doctorate. Please consider completing her request.

Hello,

My name is Kim Morgan and I am a member of the Wayne State University chapter of the MI-ACE Women's Network, previous Institutional Representative, and present member of the

Professional Development Committee of the Women's Network. I am also a doctoral student, and I am writing to request your assistance with my dissertation. The study is in regard to women in leadership in higher education and includes two surveys regarding your perspectives on multiple topics. Please only complete the survey if you are a female employee of an institution of higher education, you are not a student worker, you are 18 years of age or older, and you are a resident of the United States.

The first survey is a screening instrument that will take approximately 10 minutes. Participants who complete the first survey will be included in a $100 gift card drawing. The next part of the study is a second survey on leadership. It will take no more than 5 minutes to complete and will be sent a few weeks after the first survey's deadline. Those that complete the second survey will be included in a drawing for a second $100 gift card.

In each survey, you will be asked for your email address. Please use the same email address for both surveys. It will be used to send you the second survey, to connect results from both surveys, and to inform the winner of the $100 gift card. Because of this, your responses will not be anonymous; however, they will be confidential in that I will never reveal any personal information during the study or subsequent to it. Once the second survey is completed, your email address will be removed from the data, and your responses will be identified in the research records by a code name or number.

If you are willing to participate in the study, click on the link below and complete the first survey by July 9, 2019. Also, if you choose to be a part of the survey, be sure to add my email address, kmorgan@wayne.edu, to your contacts or approved email list so that the second survey email will not go into a junk or spam folder. Thank you for your time and consideration.

If you have any questions about this study now or in the future, you may contact Kim Morgan at the following phone number, 313-577-2497 or email at kmorgan@wayne.edu. If you have questions or concerns about your rights as a research participant, the Wayne State Institutional Review Board can be contacted at (313) 577-1628 or IRBQuestions@wayne.edu.

[Survey Link]

Thank you,

Kim Morgan

Doctoral Candidate and member of the MI-ACE Women's Network

APPENDIX D

Survey 1 – Screening Survey

(Sections in blue are notes and are not part of the survey itself.)

Women and Leadership in Higher Education Survey Study

Please completed by midnight on July 9, 2019

Informed Consent

Purpose

The purpose of this study is to examine women and leadership in higher education, and it is hoped that you will agree to participate since you are a female employee in your institution. **If you are not a female employee at an institution of higher education who is at least 18 years of age and a resident of the United States, or if you are a student worker, please do not participate in this study.**

This study is being conducted at select Michigan institutions that are members of the MI-ACE Women's Network, and you have received this request to participate because you receive emails from your institution's chapter of the MI-ACE Women's Network. By participating in this study, if you meet the qualifications listed above, you will add to the research regarding women in higher education and bring more awareness of the disparities regarding women in those positions.

Study Procedures

1. Complete this survey which asks questions regarding your political, educational and religious views, as well as a few demographic questions. This survey will take approximately 10 minutes to complete.

2. Complete a second survey regarding leadership approximately 3 weeks to 7 later, depending on when you complete each survey. The second survey will take less than 5 minutes.

Benefits

Since the results of the study will be shared with the participants, the possible benefits to you taking part include learning more about leadership in higher education institutions and the disparities for women in the field, and learning methods to decrease the disparities, and how it applies to you in your role as a higher education employee. The benefits for society are that the study will add to the research regarding women in higher education, and it will allow society to learn about the disparities for women in leadership and possible methods to alleviate it.

Risks

There are no known risks at this time to participate in this research study,

Costs

There are no costs to you for participation in this research study.

Compensation

For taking part in this research study, you will be entered into a $100 gift card drawing for each survey you complete.

Confidentiality

The only identifiable information that will be retained is your email address. This will only be used to connect your survey responses, send the second survey, and to inform the winner of the gift card drawing. Once the second survey is completed, your email address will be removed, and your responses will be identified in the research records by a code name or number.

Voluntary Participation/Withdrawal:

Taking part in this research study is voluntary. You may choose not to participate, or if you decide to participate, you can change your mind later and withdraw from the study. You are free to not

answer any questions or withdraw at any time. Your decision will not change any present or future relationships with Wayne State University or its affiliates.

Questions

If you have any questions about this study now or in the future, you may contact Kim Morgan at the following phone number, 313-577-2497. If you have any questions or concerns about your rights as a research participant, the Chair of the Institutional Review Board can be contacted at 313-577-1628. If you are unable to contact the research staff, or if you want to talk to someone other than the research staff, you may also call the Wayne State Research Subject Advocate at 313-577-1628 to discuss problems, obtain information, or offer input.

Participation

By completing this survey, you are agreeing to participate in this research study. The data that you provide may be collected and used by Qualtrics as per its privacy agreement (https://www.qualtrics.com/privacy-statement**/). Additionally, participation in this research is for residents of the United States over the age of 18; if you are not a resident of the United States and/or under the age of 18, or if you are a student worker, please do not complete this survey.**

1. I have read and understand this informed consent and agree to continue.

    a. Yes

    b. No

2. What is your gender?

    a. Female

    b. Male

    c. Other

If a participant does not select "Yes" or " female," they will be diverted to a screen that states

they do not meet the qualifications to participate in the study and thanking them for their time.

3. Are you a full-time employee at your institution?

    a. Yes

    b. No

4. Which category fits your job description best?

    a. Staff

    b. Faculty

    c. Administrator

    d. Supervisor

    e. Manager

    f. Other _____

5. Enter your email address. This will be used to contact you if you are the winner of the $100

    drawing and to send you the second survey of the study. _____

6. What is your highest completed education level?

    a. High school diploma or equivalent

    b. Associate or technical degree

    c. Bachelor's degree

    d. Master's degree

    e. Professional degree

    f. Doctorate

    g. None

    h. Other _____

7. How important is education to you?

    a. Very important

    b. Important

    c. Neutral

    d. Somewhat unimportant

    e. Unimportant

8. Is a person's level of education important to their lifetime earning potential?

    a. Very important

    b. Important

    c. Neutral

    d. Somewhat unimportant

    e. Unimportant

9. Do you feel your educational experience has contributed to your current career?

    a. Strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly Disagree

10. Do you feel that students throughout Michigan are receiving equitable educational experiences?

    a. Strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly Disagree

11. Do you believe women are appropriately represented in leadership in K-12 and higher

    education?

    a. Strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly Disagree

12. Do you believe minorities are appropriately represented in leadership in K-12 or higher

    education?

    a. Strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly Disagree

13. Do you believe that the administration and faculty in educational institutions should match

    the student population?

    a. Strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly Disagree

14. Choose the category that best fits your religious affiliation?

    a. Christian

        If so, which denomination? _____

    b. Mormon

    c. Muslim

    d. Hindu

    e. Chinese Traditional

    f. Buddhist

    g. Jewish

    h. Secular/Agnostic/Atheist

    i. None

    j. Other _____

15. Do you believe salvation comes through Jesus Christ?

    a. Strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly Disagree

    f. Not applicable

16. How often do you attend religious or worship services?

    a. Daily

    b. More than once a week but less than 7 days per week

    c. 3-4 times per month

  d. 1-2 times per month

  e. Less than once per month

  f. Never

  g. Not applicable

17. How often do you read or listen to the seminal readings regarding your religion? (Examples are the Quran, Torah, Mahayana Sutras, Bible, etc.)

  a. Daily

  b. Weekly to less than daily

  c. Monthly to less than weekly

  d. Rarely

  e. Never

  f. Not applicable

  g. Other _____

18. How many leadership or volunteer positions do you hold in your religious institution?

  a. More than 2

  b. 2

  c. 1

  d. 0

  e. Not applicable

19. How often do you invest in personal religious faith development, such as individual study of seminal readings, reading supplemental books or documents regarding your religion, personal meditation regarding your religion, etc.?

  a. Daily

b. Weekly to less than daily

c. Monthly to less than weekly

d. Rarely

e. Never

f. Not applicable

20. Do you feel obligated to share your religious faith or beliefs with others?

a. Always

b. Often

c. Seldom

d. Never

e. Not applicable

21. Which statements best fit your beliefs regarding women in religious institutions, such as churches, mosques, and temples? Click all that apply.

a. I believe women should not be priests, ministers or leaders in religious institutions.

b. I previously believed women should not be priests, ministers or leaders in religious institutions.

c. I was raised to believe women should not be priests, ministers or leaders in religious institutions.

d. I believe women should be priests, ministers or leaders in religious institutions.

e. I have no preference as to whether women should be priests, ministers or leaders in religious institutions.

f. Not applicable.

g. Other _____

22. Which political party are you a member of?

    a. Democratic

    b. Republican

    c. Libertarian

    d. Green

    e. American Independent

    f. None

    g. Other _____

23. How would you rate the intensity of your political affiliation?

    a. Very strong

    b. Strong

    c. Neutral

    d. Low

    e. Very low

    f. Not affiliated

24. Choose the category that best fits your voting habits.

    a. I vote in Presidential elections only.

    b. I vote in Presidential, Senate, and House of Representative elections.

    c. I vote in every election, but not primaries.

    d. I vote in every election and primaries.

    e. I do not vote.

    f. Other _____

25. Do you plan to vote in the next presidential election?

    a. Yes

    b. No

    c. Maybe

26. Rate your confidence in the political party system in the US.

    a. High

    b. Slightly high

    c. Neutral

    d. Low

    e. Very low

    f. Other _____

27. Do you believe women are appropriately represented in the political arena?

    a. Strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly Disagree

28. Do you believe a woman should be president?

    a. Strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly Disagree

29. Do you believe the political system in the United States gives minorities the opportunity to advance in their political careers?

    a. Strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly Disagree

30. Do you believe that the racial and gender makeup of elected officials must match the population they represent in order to be effective?

    a. Strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly Disagree

31. Race – Check all that apply.

    a. African American/Black

    b. Hispanic

    c. White

    d. Asian

    e. Middle Eastern

    f. American Indian or Alaska Native

    g. Native Hawaiian or other Pacific Islander

    h. Other _____

APPENDIX E

Respondents that Did Not Finish the Survey and Where They Stopped

Table 16

57 Respondents Who Did Not Complete the Survey and Where They Stopped

Question	Question Wording	Next Question Wording	Responses
1	Informed Consent	What is your gender?	2
2	What is your gender?	Are you a full-time employee?	26
6	What is your email address?	How important is education to you?	6
13	Do you believe that the administration and faculty in educational institutions should match the student population?	Choose the category that best fits your religious affiliation.	1
14	Choose the category that best fits your religious affiliation.	Do you believe salvation comes through Jesus Christ? OR How often do you attend religious or worship services?*	18
22	Which statements best fit your beliefs regarding women in religious institutions, such as churches, mosques and temples?	Which political party are you a member of?	4

*Since not all respondents were given question 15 regarding salvation through Jesus Christ, these participants could have received either question next.

APPENDIX F

Responses to Education Questions – All Respondents

Table 17

"What is your highest completed education level?"

Completed Education Level	Number of Responses
High school diploma or equivalent	28
Associate or technical degree	21
Bachelor's degree	112
Master's degree	265
Professional degree	21
Doctorate	147
None	0
Other: Education Specialists	2

Table 18

Education Questions with Mean Response

Question	5 – unimportant, 1 – very important
How important is education to you?	1.17
Is a person's level of education important to their lifetime earning potential?	1.85

Question	5 – Strongly Disagree, 1 – Strongly agree
Do you feel your educational experience has contributed to your current career?	1.53
Do you feel that students throughout Michigan are receiving equitable educational experiences?	3.72
Do you believe women are appropriately represented in leadership in K-12 and higher education?	3.39
Do you believe minorities are appropriately represented in leadership in K-12 and higher education?	3.93
Do you believe that the administration and faculty in educational institutions should match the student population?	2.21

APPENDIX G

Responses to Politics Questions – All Respondents

Table 19

"Which political party are you a member of?"

Party	Number of Responses
Democratic	354
Republican	60
Libertarian	4
Green	0
American Independent	20
None	137
Other	21

Other responses: Socialist, Non-Partisan, Progressive Independent, Independent, Permanent Resident, Mixture, Prefer not to say, Biblicrat, Vote according to candida platform.

Table 20

"Choose the category that best fits your voting habits."

Voting Habits	Number of Responses
I vote in Presidential elections only	46
I vote in Presidential, Senate, and House of Representative elections	52
I vote in every election, but not primaries	60
I vote in every election and primaries	409
I do not vote	12
Other	17

Other responses: Almost every time polls open, every election and most primaries, depends on who is running or what is on the ballot, it varies, high stakes elections, when they feel it is relevant, cannot vote because they are a resident alien.

Table 21

"Do you plan to vote in the next presidential election?"

Answer	Number of Responses
Yes	575
No	12
Maybe	9

Table 22

"Rate your confidence in the political party system in the U.S."

Level of Confidence	Number of Responses
High	9
Slightly high	46
Neutral	126
Low	242
Very low	167
Other: None, despicable, rigged, don't understand what is meant by political party system.	6

Table 23

Mean of Other Politics Questions

Question	5 – Strongly disagree, 1 – Strongly agree
Do you believe women are appropriately represented in the political arena?	4.03
Do you believe a woman should be president?	1.58
Do you believe the political system in the United States gives minorities the opportunity to advance in their political careers?	3.60
Do you believe that the racial and gender makeup of elected officials must match the population they represent in order to be effective?	2.48

APPENDIX H

Religious Questions for Screening Survey

14. Choose the category that best fits your religious affiliation?

    a. Christian

        If so, which denomination? _____

    b. Mormon

    c. Muslim

    d. Hindu

    e. Chinese Traditional

    f. Buddhist

    g. Jewish

    h. Secular/Agnostic/Atheist

    i. None

    j. Other _____

15. Do you believe salvation comes through Jesus Christ?

    a. Strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly Disagree

    f. Not applicable

16. How often do you attend religious or worship services?

    a. Daily

b. More than once a week but less than 7 days per week

c. 3-4 times per month

d. 1-2 times per month

e. Less than once per month

f. Never

g. Not applicable

17. How often do you read or listen to the seminal readings regarding your religion? (Examples are the Quran, Torah, Mahayana Sutras, Bible, etc.)

   a. Daily

   b. Weekly to less than daily

   c. Monthly to less than weekly

   d. Rarely

   e. Never

   f. Not applicable

   g. Other _____

18. How many leadership or volunteer positions do you hold in your religious institution?

   a. More than 2

   b. 2

   c. 1

   d. 0

   e. Not applicable

19. How often do you invest in personal religious faith development, such as individual study of seminal readings, reading supplemental books or documents regarding your religion, personal meditation regarding your religion, etc.?

    a. Daily

    b. Weekly to less than daily

    c. Monthly to less than weekly

    d. Rarely

    e. Never

    f. Not applicable

20. Do you feel obligated to share your religious faith or beliefs with others?

    a. Always

    b. Often

    c. Seldom

    d. Never

    e. Not applicable

21. Which statements best fit your beliefs regarding women in religious institutions, such as churches, mosques, and temples? Click all that apply.

    a. I believe women <u>should</u> <u>not</u> be priests, ministers or leaders in religious institutions.

    b. I previously believed women <u>should</u> <u>not</u> be priests, ministers or leaders in religious institutions.

    c. I was raised to believe women <u>should not</u> be priests, ministers or leaders in religious institutions.

    d. I believe women <u>should</u> be priests, ministers or leaders in religious institutions.

e. I have no preference as to whether women should be priests, ministers or leaders in religious institutions.

f. Not applicable.

g. Other _____

APPENDIX I

Religious Question Responses

Table 24

"Choose the category that best fits your religious affiliation?"

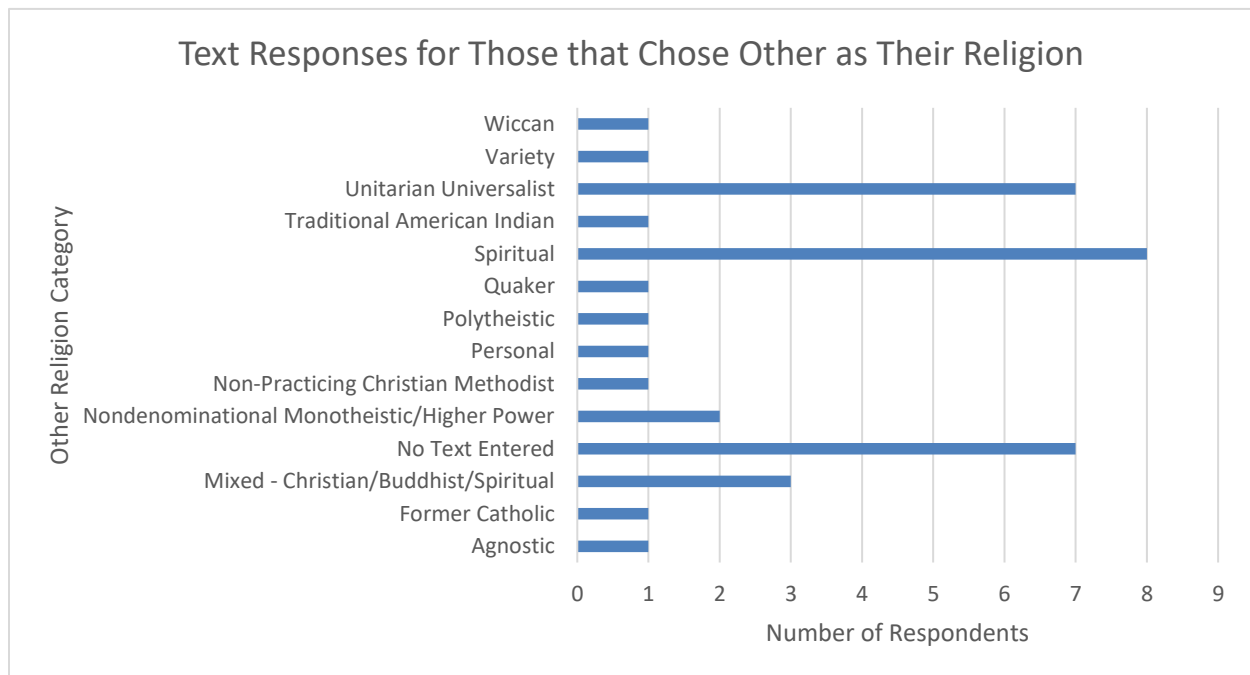| Religious Affiliation	Number of Responses
Buddhist	7
Chinese Traditional	0
Christian	332
Hindu	6
Jewish	13
Mormon	2
Muslim	6
None	85
Other	37
Secular/Agnostic/Atheist	108

Figure 4. Text Responses for Those that Chose Other as Their Religion – 36 Responses

Table 25

Christian Denominations - 332 Christian Respondents

Denomination	Number of Responses
Apostolic	1
Assembly of God	1
Baptist (Includes American)	42
Catholic (Includes Byzantine, Roman)	110
Catholic and Lutheran	1
Christian	4
Christian Reformed	1
Church of God	2
Church of God in Christ	3
Doesn't Matter	1
Eastern Orthodox	1
Episcopalian	11
Evangelical	3
Greek Orthodox	2
Lutheran (includes ELCA, Missouri Synod)	31
Methodist (Includes United)	26
Non	3
Nondenominational	52
None	10
Orthodox	1
Pentecostal/Charismatic/Evangelistic	7
Presbyterian	7
Protestant	4
Quaker	1
Seventh-Day Adventist	2

Unitarian Universalist	2
United Church of Christ	2
Wesleyan	1

Table 26

"Do you believe salvation comes through Jesus Christ?"

Response	Number of Responses
Strongly agree	149
Agree	84
Neutral	75
Disagree	11
Strongly Disagree	5
Not applicable	6

Note: There were 332 respondents who were Christians. However, two respondents to the question regarding religious affiliation had responded "other," but then listed a Christian denomination. They were moved to the appropriate area for further analysis; but since they responded "other," they were not given the question on salvation through Jesus Christ.

Table 27

"How often do you attend religious or worship services?"

Response	Number of Christian Responses	Number of Non-Christian Responses	Total
Daily	1	0	1
More than once a week, less than 7 days per week	27	3	30
3-4 times per month	104	7	111
1-2 times per month	46	14	60
Less than once per month	119	51	170
Never	29	113	142
Not applicable	6	76	82

Table 28

"How often do you read or listen to the seminal readings regarding your religion? (Examples are the Quran, Torah, Mahayana Sutras, Bible, etc.)?"

Response	Number of Christian Responses	Number of Non-Christian Responses	Total
Daily	49	6	55
Weekly to less than daily	61	13	74
Monthly to less than weekly	58	10	68
Rarely	115	33	148
Never	44	84	128
Not applicable	4	111	115
Other	1	7	8

Other Categories: Personal; spiritual books; podcasts; Buddhist; St. Anthony, Faith and School of Community Journals; teaches religious courses; there are none, it is an oral tradition; many different ones.

Table 29

"How many leadership or volunteer positions do you hold in your religious institution?"

Response	Number of Christian Responses	Number of Non-Christian Responses	Total
More than 2	28	4	32
2	28	4	32
1	53	12	65
0	199	58	257
Not applicable	24	186	210

Table 30

"How often do you invest in personal religious faith development, such as individual study of seminal readings, reading supplemental books or documents regarding your religion, personal meditation regarding your religion, etc.?"

Response	Number of Christian Responses	Number of Non-Christian Responses	Total
Daily	59	17	76
Weekly to less than daily	46	8	54
Monthly to less than weekly	53	19	72
Rarely	98	34	132
Never	69	73	142
Not applicable	7	113	120

Table 31

"Do you feel obligated to share your religious faith or beliefs with others?"

Response	Number of Christian Responses	Number of Non-Christian Responses	Total
Always	9	0	9
Often	41	6	47
Seldom	138	55	193
Never	137	121	258
Not applicable	7	82	89

APPENDIX J

Race

Table 32

Race Categories

Race Category	Number of Christian Respondents	Number of Non-Christian Respondents	Total
1. African American/Black	70	9	79
2. Hispanic	4	4	8
3. White	223	218	441
4. Asian	5	10	15
5. Middle Eastern	3	1	4
6. American Indian or Alaska Native	2	1	3
7. Native Hawaiian or Other Pacific Islander	0	0	0
8. Other	7	6	13
Multiple Races	18 (4 included Black)	15 (4 include Black)	33 (8 include Black)

Table 33

Respondents Who Chose Multiple Races

Categories Chosen	Number of Respondents	Number of Christian Responses
1,2,3	1	0
1,3	4	2
1,3,6	1	1
1,6	2	1
2,3	7	4
2,3,8	1	0
2,8	1	0
3,4	5	3
3,5	2	2
3,5,6	1	1
3,5,8	1	0
3,6	2	1
3,7	1	1
3,8	2	1
4,7	1	1
4,8	1	0

Table 34

Race – "Other" Responses

Text Response	Number of Christian Responses	Number of Non-Christian Responses	Total
Bi-or Multi-racial	1	1	2
Declined to Answer or Preferred Not to Say	1	1	2
I do not identify as a race, I identify with indigenous ancestry of North America	1	0	1
N/A	0	1	1
Brown	0	1	1
Prefer Latina or Chicane, not Hispanic	0	1	1
Middle Eastern is not a race	0	1	1
<.25 American Indian	1	0	1
Philipinx	0	1	1
No text entered	0	7	7

Note: 5 who listed "Other" also listed other races.

APPENDIX K

Leadership Question Responses
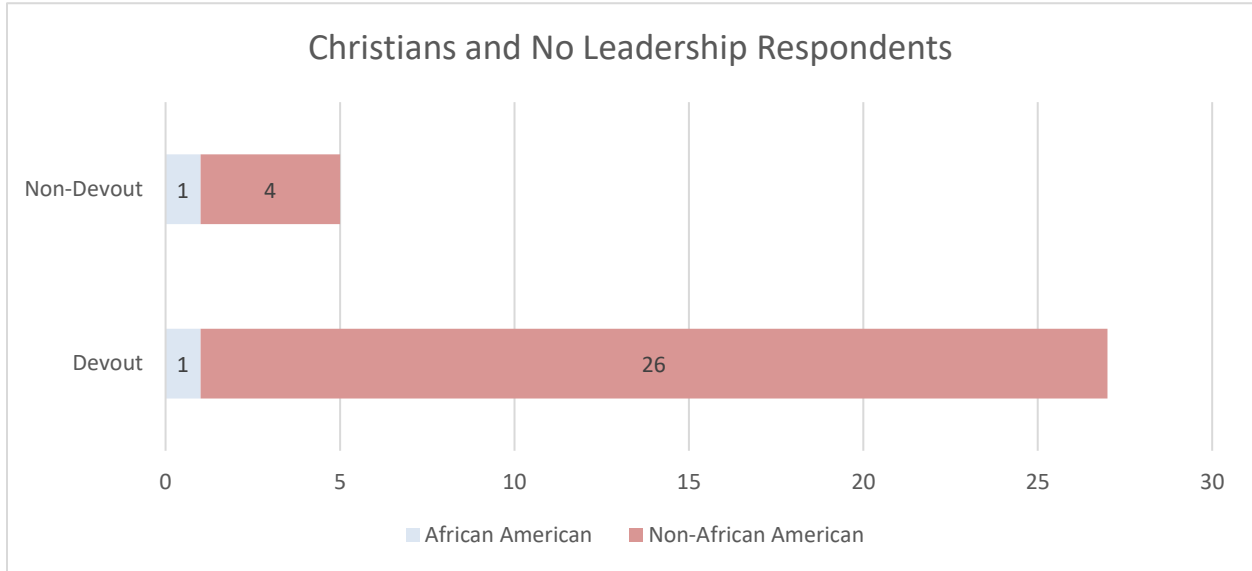
Figure 5. Christians, Indicating How Many of Each Category Believe, Have Believed or Were Raised to Believe that Women Should not be Leaders in Religious Organizations – 32 Respondents
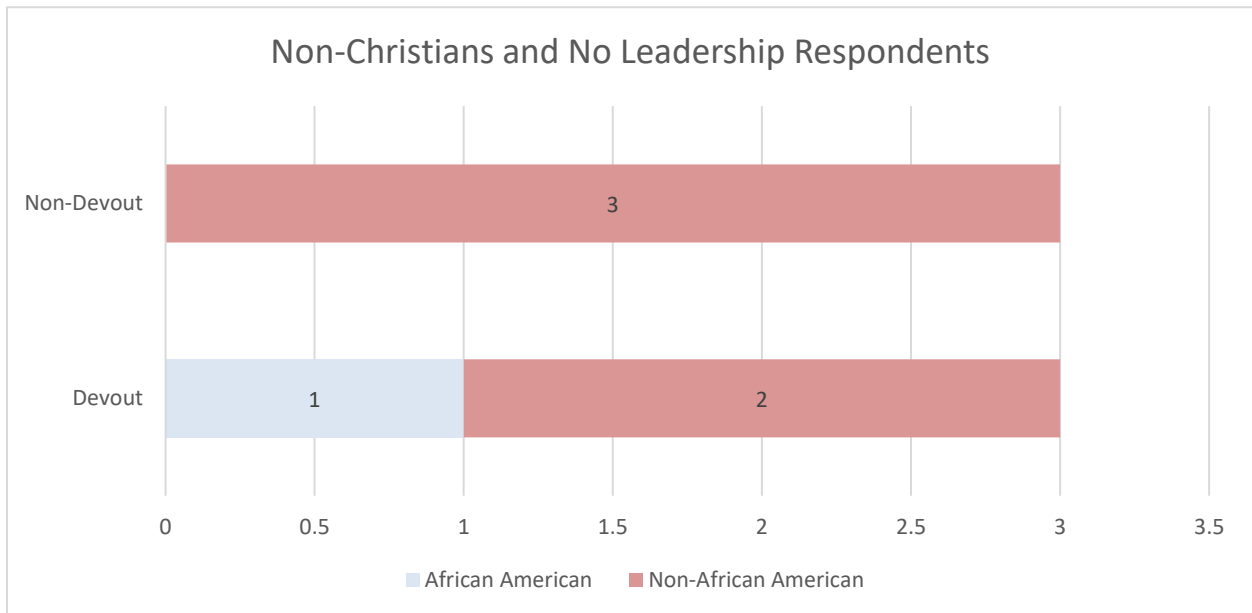

Figure 6. Non-Christians, Indicating How Many of Each Category Believe, Have Believed or Were Raised to Believe that Women Should not be Leaders in Religious Organizations – 6 Respondents
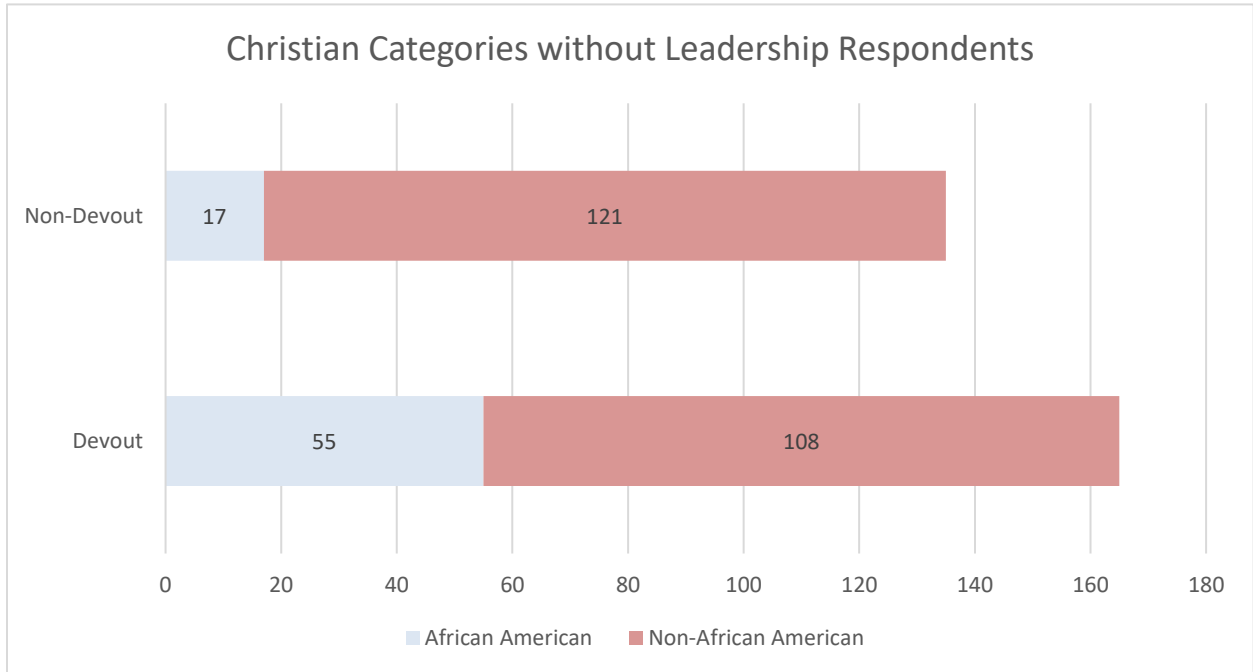
Figure 7. Christian Categories without Leadership Respondents, Including Devout or Not, and African American or Not – 301 Respondents
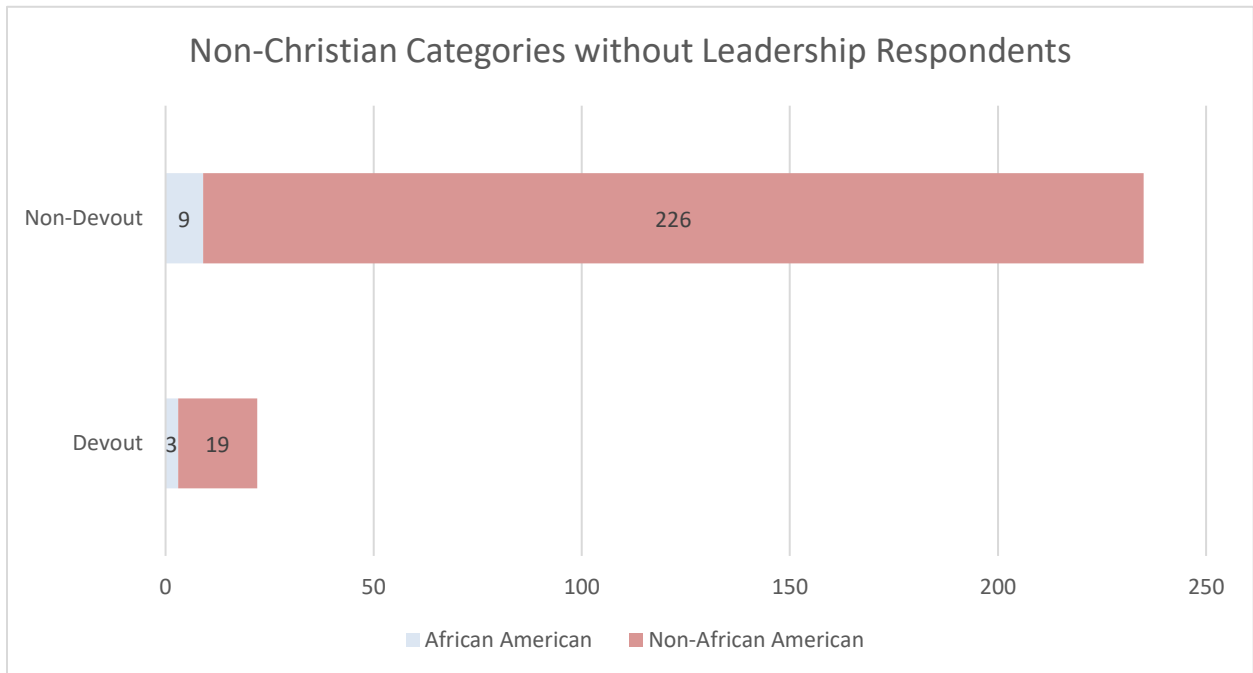

Figure 8. Non-Christian Categories without Leadership Respondents, Including Devout or Not and African American or Not - 257 Respondents
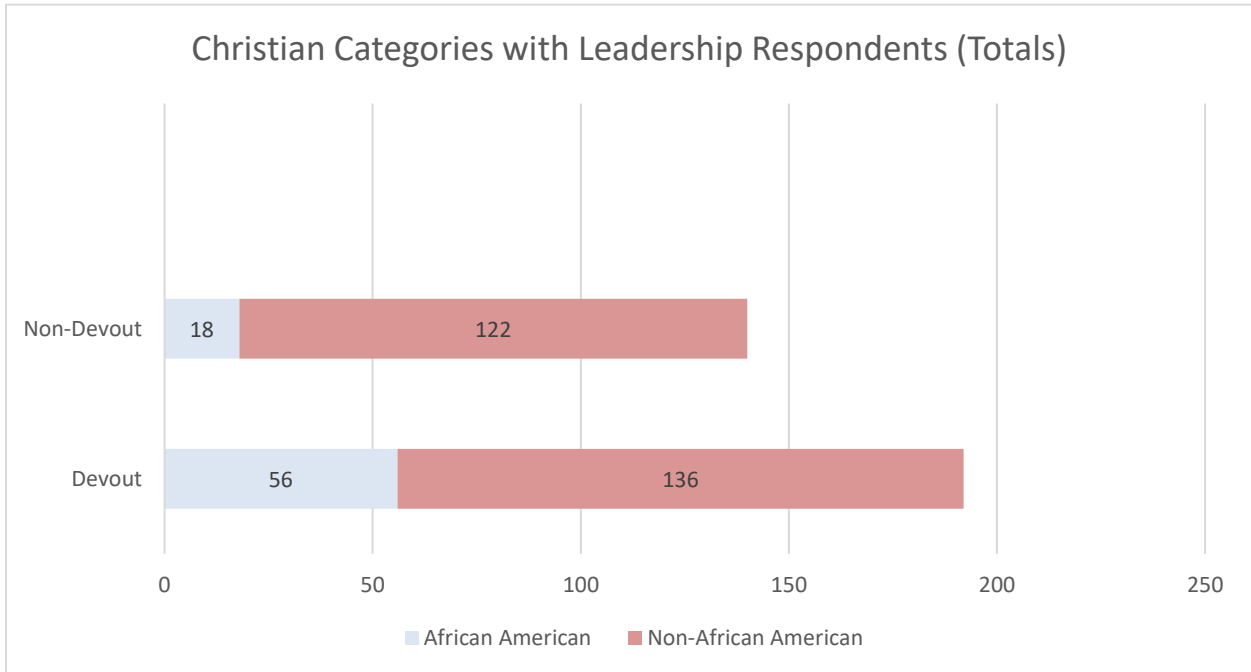
Figure 9. Christian Categories with Leadership Respondents, Including Devout or Not, and African American or Not - 332 Respondents
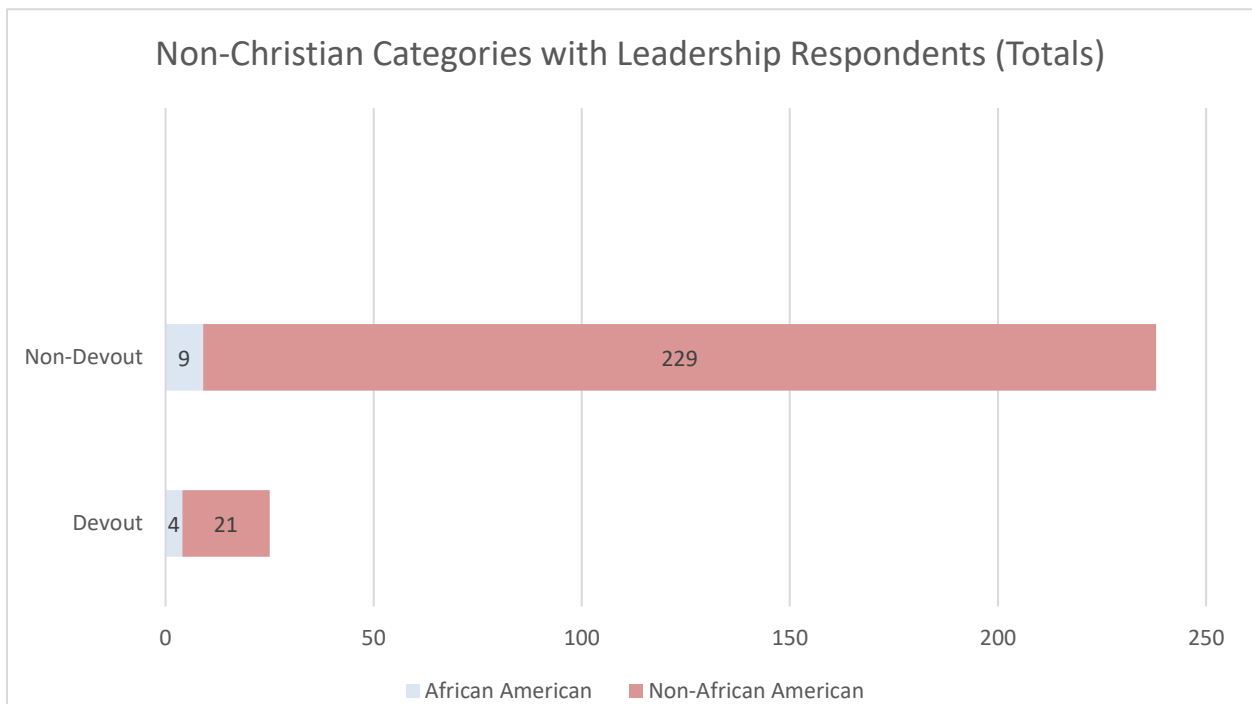

Figure 10. Non-Christian Categories with Leadership Respondents, Including Devout or Not, and African American or Not - 263 Respondents

APPENDIX L

Treatment Survey Email

Subject: Women and Leadership in Higher Education Study Survey #2 – $100 Gift Card Drawing

- Complete by August 11, 2019

Dear Study Participant,

My name is Kim Morgan and I am writing with the second portion of the study that I am conducting regarding women in leadership in higher education. Thank you so much for completing the first survey, which was sent out over a month ago through your Institutional Representative(s) for the MI-ACE Women's Network. The winner of the $100 gift card drawing for the first survey has been drawn and notified. Below you will find a link to the second survey, which will take approximately 5 minutes. **You must complete the second survey in order to fully participate in the study.**

During this survey, you will be asked for your email address. **Please enter the same one that this survey was sent to**. The email address will be used to connect results from both surveys; therefore, your responses to the surveys will not be anonymous. However, they will be confidential in that I will never reveal any personal information during the study or subsequent to it. After the second survey is completed, your responses to the two surveys will be connected by a code, and your email will no longer be connected to your responses.

Those that complete the second survey will be included in a second drawing for a $100 gift card. Please complete it by midnight on August 11, 2019. Click on the link at the end of this email to enter the survey. Thank you so much for your help.

If you have any questions about this study now or in the future, you may contact Kim Morgan at the following phone number, 313-577-2497 or email at kmorgan@wayne.edu. If you have questions or concerns about your rights as a research participant, the Wayne State Institutional Review Board can be contacted at (313) 577-1628 or IRBQuestions@wayne.edu.

[Survey Link]

Thank you,

Kim Morgan

Doctoral Candidate and member of the MI-ACE Women's Network

Wayne State University

APPENDIX M

Treatment Survey – 4 Versions

The four versions of the second survey were almost identical. The only difference is that in groups 2 – 4, 1 or 2 questions were added. See below for the survey with the additional questions.

Women and Leadership in Higher Education Survey Study - Part Two

Please completed by midnight on August 11, 2019

Completing part two as well as part one, which you have already completed, is essential in order to participate in the study.

Informed Consent

Purpose

The purpose of this study is to examine women and leadership in higher education, and it is hoped that you will agree to participate since you are a female employee in your institution. **If you are not a female employee at an institution of higher education who is at least 18 years of age and a resident of the United States, or if you are a student worker, please do not participate in this study.**

This study is being conducted at select Michigan institutions that are members of the MI-ACE Women's Network, and you have received this request to participate because you receive emails from your institution's chapter of the MI-ACE Women's Network. By participating in this study, if you meet the qualifications listed above, you will add to the research regarding women in higher education and bring more awareness of the disparities regarding women in those positions.

Study Procedures

1. Complete the first survey, which you have already done.

2. Complete a second survey regarding leadership approximately 3 to 7 weeks later, depending on when you complete each survey. The survey itself will take approximately 5 minutes. Please only complete each survey once.

Benefits

Since the results of the study will be shared with the participants, the possible benefits to you taking part include learning more about leadership in higher education institutions and the disparities for women in the field, and learning methods to decrease the disparities, and how it applies to you in your role as a higher education employee. The benefits for society are that the study will add to the research regarding women in higher education, and it will allow society to learn about the disparities for women in leadership and possible methods to alleviate it.

Risks

There are no known risks at this time to participate in this research study,

Costs

There are no costs to you for participation in this research study.

Compensation

For taking part in this research study, you will be entered into a $100 gift card drawing for each survey you complete.

Confidentiality

The only identifiable information that will be retained is your email address. This will only be used to connect your survey responses, send the second survey, and to inform the winner of the gift card drawing. Once the second survey is completed, your email address will be removed, and your responses will be identified in the research records by a code name or number.

Voluntary Participation/Withdrawal:

Taking part in this research study is voluntary. You may choose not to participate, or if you

decide to participate, you can change your mind later and withdraw from the study. You are free

to not answer any questions or withdraw at any time. Your decision will not change any present

or future relationships with Wayne State University or its affiliates.

Questions

If you have any questions about this study now or in the future, you may contact Kim Morgan at

the following phone number, 313-577-2497. If you have any questions or concerns about your

rights as a research participant, the Chair of the Institutional Review Board can be contacted at

313-577-1628. If you are unable to contact the research staff, or if you want to talk to someone

other than the research staff, you may also call the Wayne State Research Subject Advocate at

313-577-1628 to discuss problems, obtain information, or offer input.

Participation

By completing this survey, you are agreeing to participate in this research study. The data that

you provide may be collected and used by Qualtrics as per its privacy agreement

(https://www.qualtrics.com/privacy-statement/). Additionally, **participation in this research is**

for residents of the United States over the age of 18; if you are not a resident of the United

States and/or under the age of 18, or if you are a student worker, please do not complete

this survey.

    1. I have read and understand this informed consent and agree to continue.

        a. Yes

        b. No

2. Enter your email address. **It must be the one that this survey request was sent to.** It will be used to contact you if you are the winner of the $100 drawing and to initially connect your responses for the first and second survey. After you complete the second survey, your two surveys will be connected using a code, and your email address will no longer be connected to your responses. _____

3. Enter the name of the higher education institution for which you work.

   _____

4. The following survey is evaluative of your leadership skills and your beliefs about leadership.

   a. I have read and understand the statement above.

Group 1 will answer question 10, skip question 11 and continue; Group 2 will be given question 10, skip question 11 and continue; group 3 will answer all questions; and finally, group 4 will skip both questions 10 and 11, and then continue.

5. What is your gender?

   a. Male

   b. Female

   c. Other

6. Are you a Christian?

   a. Yes, what denomination? _____

   b. No

7. How would you rate your leadership skills?

   a. Excellent

   b. Above average

    c. Average

    d. Below average

    e. Poor

8. How do you believe others would rate your leadership skills?

    a. Excellent

    b. Above average

    c. Average

    d. Below average

    e. Poor

9. How interested are you in advancing your career in higher education?

    a. Extremely interested

    b. Interested

    c. Neutral

    d. Uninterested

    e. Extremely uninterested

    f. I am already at the highest level in my institution

10. Answer the following questions in the context of higher education leadership.

11. Rate the opportunities for women compared to men.

    a. Much better than men

    b. Better than men

    c. About the same

    d. Less than men

    e. Much less than men

  f. I do not know

  g. Other _____

12. Rate the opportunities for Christians compared to non-Christians.

  a. Much better than non-Christians

  b. Better than non-Christians

  c. About the same

  d. Less than non-Christians

  e. Much less than non-Christians

  f. I do not know

  g. Other _____

13. Rate the opportunities for Christian women compared to Christian men.

  a. Much better than Christian men

  b. Better than Christian men

  c. About the same

  d. Less than Christian men

  e. Much less than Christian men

  f. I do not know

  g. Other _____

14. Rate the opportunities for Christian women compared to all other people (i.e. Christian men and non-Christian people).

  a. Much better than all other people

  b. Better than all other people

  c. About the same

    d. Less than all other people

    e. Much less than all other people

    f. I do not know

    g. Other _____

15. Rate the opportunities for people of non-Christian religions compared to all other people

    (i.e. Christians and non-religious people).

    a. Much better than all other people

    b. Better than all other people

    c. About the same

    d. Less than all other people

    e. Much less than all other people

    f. I do not know

    g. Other _____

16. Rate the opportunities for women of non-Christian religions compared to men of non-

    Christian religions.

    a. Much better than men of non-Christian religions

    b. Better than men of non-Christian religions

    c. About the same

    d. Less than men of non-Christian religions

    e. Much less than men of non-Christian religions

    f. I do not know

    g. Other _____

17. Rate the opportunities for women of non-Christian religions compared to all other people (i.e. men of non-Christian religions, Christians, and non-religious people).

  a. Much better than all other people

  b. Better than all other people

  c. About the same

  d. Less than all other people

  e. Much less than all other people

  f. I do not know

  g. Other _____

18. Enter any comments you would like to make regarding the survey or the study as a whole. _____

19. Would you like a summary of the results of the study?

  a. Yes

  b. No

20. Would you be willing to participate in a 45-minute to 1-hour interview regarding your perspectives on women in leadership in higher education? If selected, the interview would take place approximately 9-12 months after this survey is completed. Those that participate would be included in a third $100 gift card drawing.

  a. Yes

  b. Maybe

  c. No

APPENDIX N

Means of Leadership Equity Questions

Table 35

Means of Leadership Equity Questions – Treatment Survey

Question	5 – Much Less, 1 – Much Better	Number of Participants Averaged	Number who Stated They Did Not Know
Rate the opportunities for women compared to men.	3.78	262	5
Rate the opportunities for Christians compared to non-Christians.	2.78	183	78
Rate the opportunities for Christian women compared to Christian men.	3.73	195	68
Rate the opportunities for Christian women compared to all other people.	3.22	170	89
Rate the opportunities for people of non-Christian religions compared to all other people.	3.39	189	73
Rate the opportunities for women of non-Christian religions compared to men of non-Christian religions.	3.72	195	69
Rate the opportunities for women of non-Christian religions compared to all other people.	3.65	173	89

Note: All those who gave a response of "other" were removed, as well as those who responded that they did not know.

APPENDIX O

Tests for Normality

Rate-Yourself Question

Table 36

Rate-Yourself - Kolmogorov-Smirnova and Shapiro-Wilk Tests of Normality

	Group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Rate-Yourself	1	.344	61	.000	.794	61	.000
	2	.318	82	.000	.765	82	.000
	3	.331	69	.000	.751	69	.000
	4	.394	60	.000	.682	60	.000
	All	.343	272	.000	.773	272	.000

a. Lilliefors Significance Correction

Table 37

Rate-Yourself - Skewness and Kurtosis

Group	Skewness Statistic	Skewness Standard Error	zSkew	Kurtosis Statistic	Kurtosis Standard Error	zKurt
1	0.403	.306	1.317	0.443	.604	0.733
2	-0.179	.266	-0.673	-0.510	.526	-0.970
3	.087	.289	0.301	-0.454	.570	-0.800
4	1.531	.309	4.955	6.240	.608	10.263
All	.381	.148	2.570	0.940	.294	3.200

Table 38

Rate-Yourself - Levene's Test of Equality of Error Variances

		Levene Statistic	d16	d17	Sig.
	Based on Mean	1.593	3	268.00	.191
	Based on Median	1.013	3	268.00	.387
Rate-Yourself	Based on Median and with adjusted df	1.013	3	265.07	.387
	Based on trimmed mean	1.983	3	268.00	.117

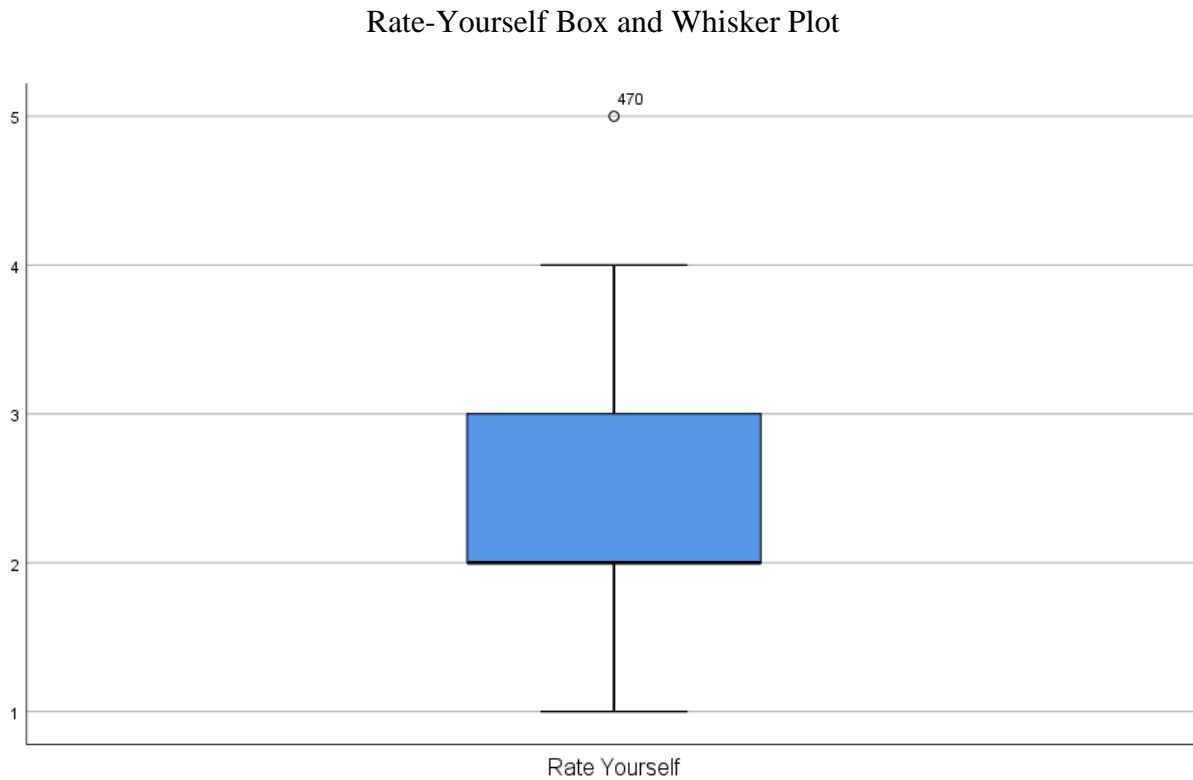Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Rate-Yourself Box and Whisker Plot

Figure 11. Test for Outlier Box and Whisker Plot – Rate-Yourself

Table 39

Rate-Yourself - Skewness and Kurtosis – Without Outlier – Group 4 and All

Group	Skewness Statistic	Skewness Standard Error	zSkew	Kurtosis Statistic	Kurtosis Standard Error	zKurt
4	.162	.311	.521	.785	.613	1.281
All	.127	.148	.858	-.042	.295	0.142

Table 40

Rate-Yourself - Levene's Test of Equality of Error Variances without Outlier

		Levene Statistic	d16	d17	Sig.
	Based on Mean	4.703	3	267.000	.003
	Based on Median	1.902	3	267.000	.130
Rate-Yourself	Based on Median and with adjusted df	1.902	3	260.843	.130
	Based on trimmed mean	4.579	3	267.000	.004

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
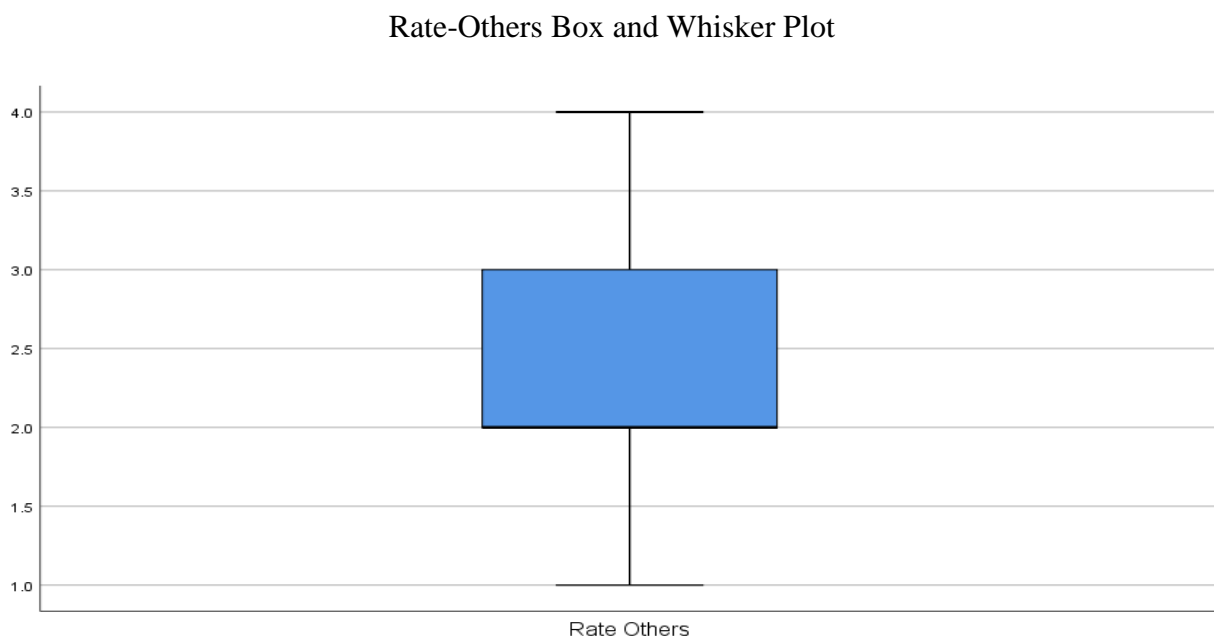
Rate-Others Question

Table 41

Rate-Others - Kolmogorov-Smirnova and Shapiro-Wilk Tests of Normality

	Group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
	1	.307	61	.000	.812	61	.000
Rate-Others	2	.275	82	.000	.821	82	.000
	3	.308	69	.000	.782	69	.000
	4	.342	60	.000	.781	60	.000
	All	.305	272	.000	.808	272	.000

a. Lilliefors Significance Correction

Table 42

Rate-Others - Skewness and Kurtosis

Group	Skewness Statistic	Skewness Standard Error	zSkew	Kurtosis Statistic	Kurtosis Standard Error	zKurt
1	.047	.306	0.177	-.142	.604	-0.270
2	-.085	.266	-0.294	-.508	.526	-0.891
3	-.083	.289	-0.269	-.296	.570	-0.487
4	.360	.309	2.432	.780	.608	2.653
All	.021	.148	0.142	-.254	.294	0.000

Table 43

Rate-Others - Levene's Test of Equality of Error Variances

		Levene Statistic	d16	d17	Sig.
	Based on Mean	2.242	3	268.000	.084
	Based on Median	0.869	3	268.000	.458
Rate-Others	Based on Median and with adjusted df	0.869	3	267.888	.458
	Based on trimmed mean	2.571	3	268.000	.055

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Rate-Others Box and Whisker Plot

Figure 12. Test for Outlier Box and Whisker Plot – Rate-Others

Career Aspirations Questions

Table 44

Career Aspirations - Kolmogorov-Smirnova and Shapiro-Wilk Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Group	Statistic	df	Sig.	Statistic	df	Sig.
	1	.266	58	.000	.837	58	.000
Rate-Yourself	2	.247	81	.000	.808	81	.000
	3	.286	68	.000	.827	68	.000
	4	.244	60	.000	.854	60	.000
	All	.263	263	.000	.835	263	.000

a. Lilliefors Significance Correction

Table 45

Career Aspirations - Skewness and Kurtosis

Group	Skewness Statistic	Skewness Standard Error	zSkew	Kurtosis Statistic	Kurtosis Standard Error	zKurt
1	.938	.314	2.987	0.664	.618	1.074
2	.849	.267	3.180	-0.169	.529	-0.319
3	.915	.291	3.144	1.537	.574	2.678
4	.780	.309	2.524	0.282	.608	0.464
All	.866	.150	5.773	0.408	.299	1.365

Table 46

Career Aspirations - Levene's Test of Equality of Error Variances

		Levene Statistic	d16	d17	Sig.
	Based on Mean	1.203	3	263.000	.309
	Based on Median	0.990	3	263.000	.398
Rate-Yourself	Based on Median and with adjusted df	0.990	3	261.818	.398
	Based on trimmed mean	1.020	3	263.000	.384

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Career Aspirations Box and Whisker Plot – First Iteration
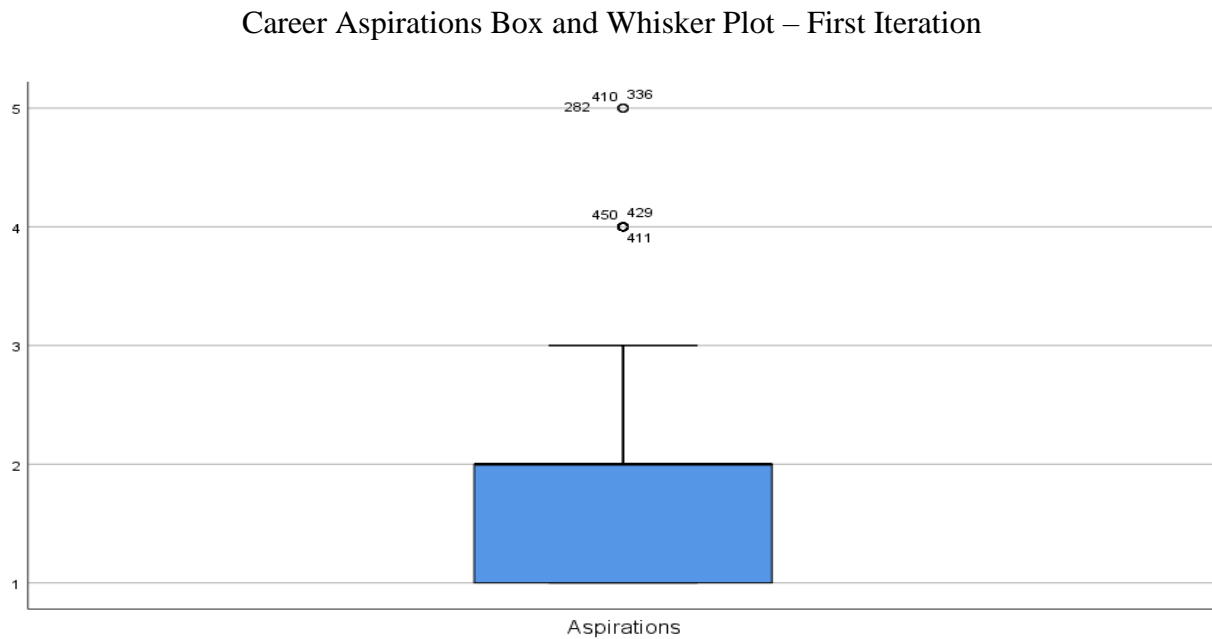
Figure 13. Test for Outlier Box and Whisker Plot – Career Aspirations – First Iteration

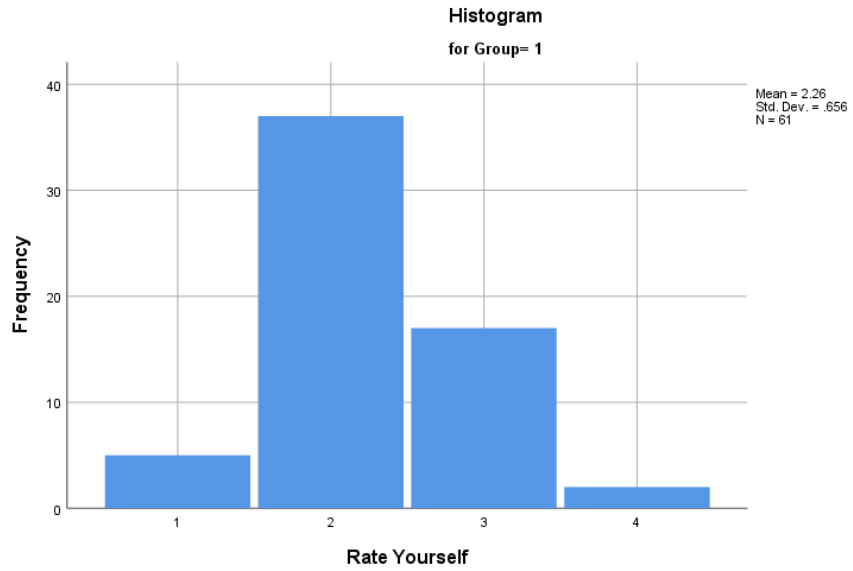Career Aspirations Box and Whisker Plot – First Iteration
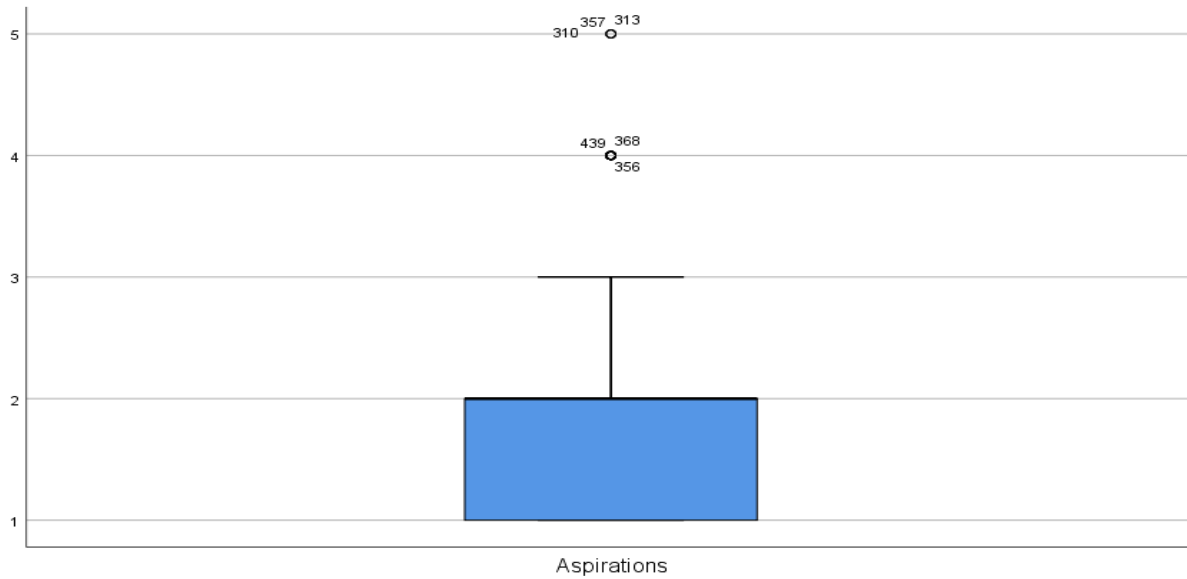
Figure 14. Test for Outlier Box and Whisker Plot – Career Aspirations – Second Iteration

Rate-Yourself Histograms by Group

If the rating of 5 does not appear in a histogram, it is because there were no responses for that rating in that particular instance.
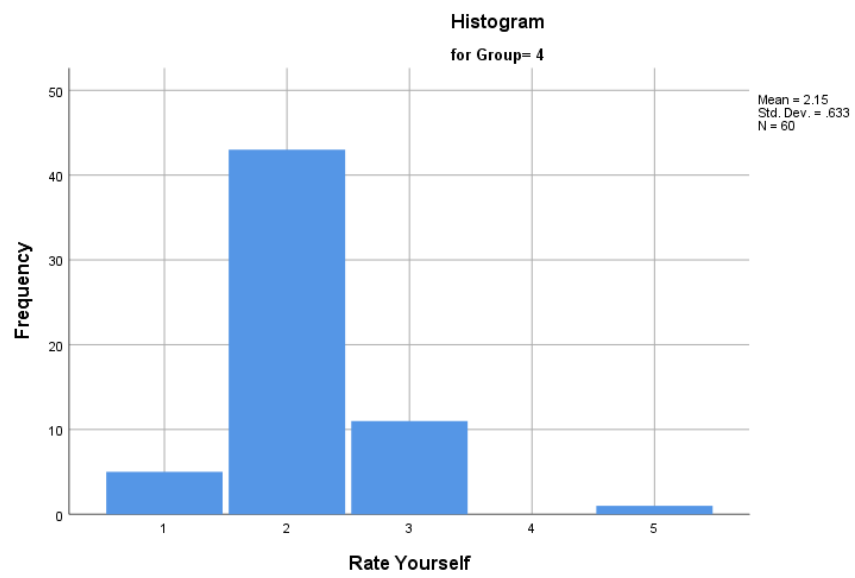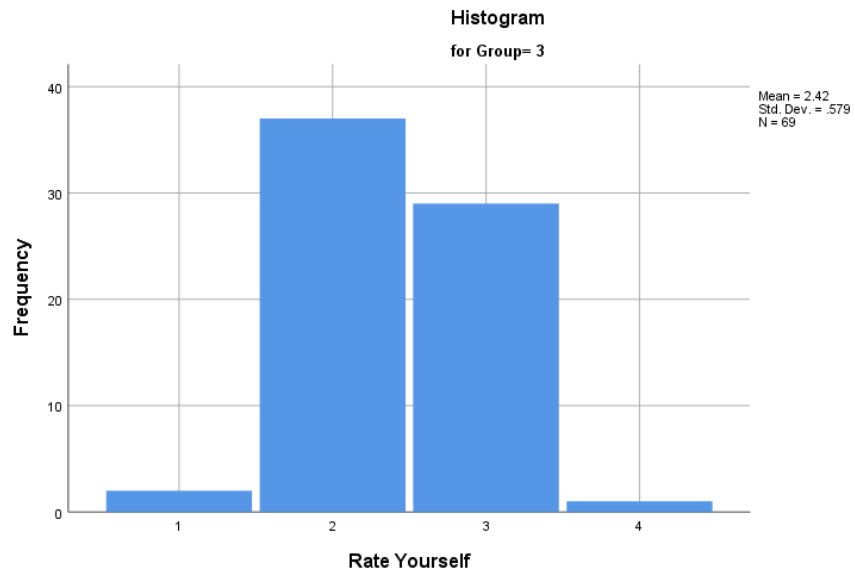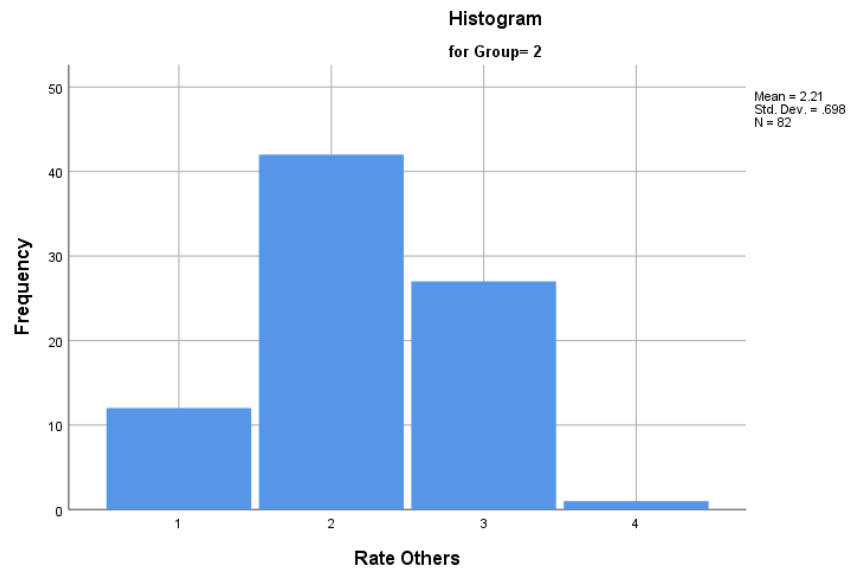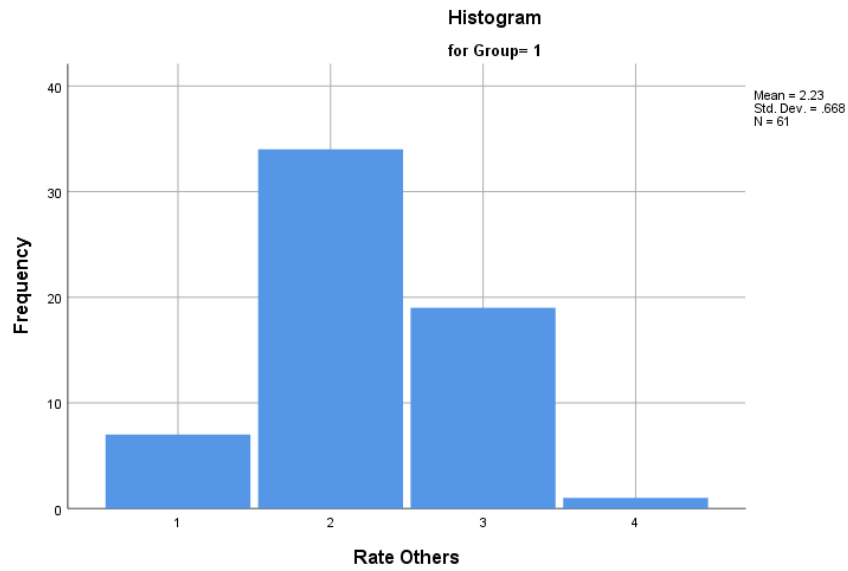

Histogram for Group= 1

Mean = 2.26
Std. Dev. = .656
N = 61

Histogram for Group= 2

Mean = 2.23
Std. Dev. = .615
N = 82
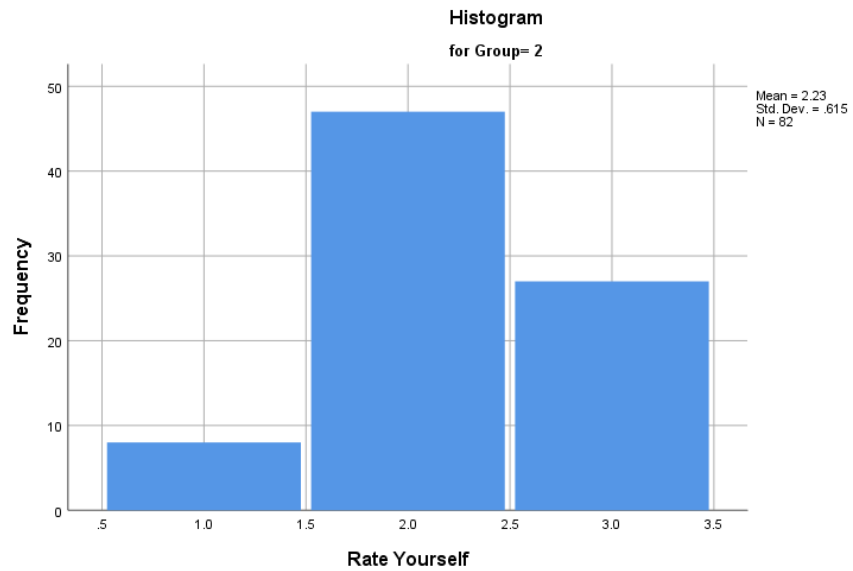
Figure 15. Rate-Yourself Histograms by Group

Rate-Others Histograms by Group

If the rating of 5 does not appear in a histogram, it is because there were no responses for

that rating in that particular instance.

Figure 16. Rate-Others Histograms by Group

Career Aspirations Histograms by Group

If the rating of 5 does not appear in a histogram, it is because there were no responses for that rating in that particular instance.
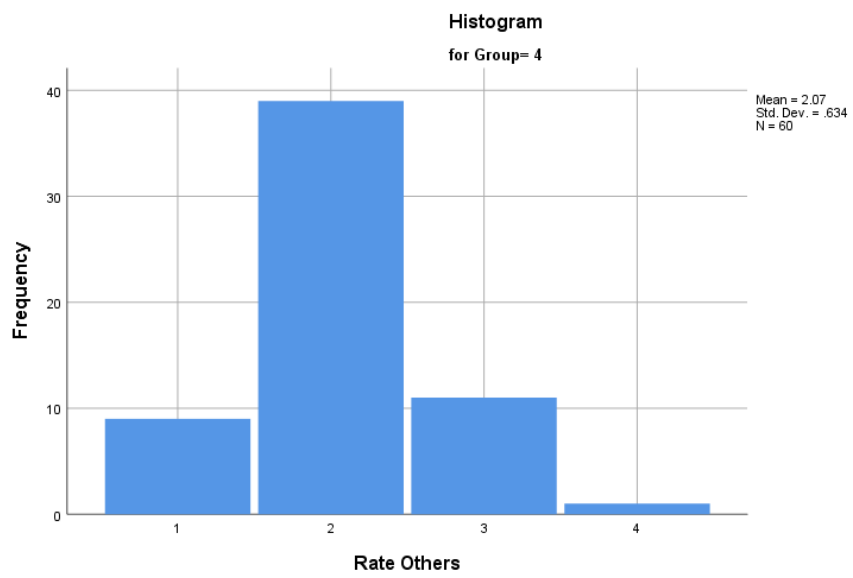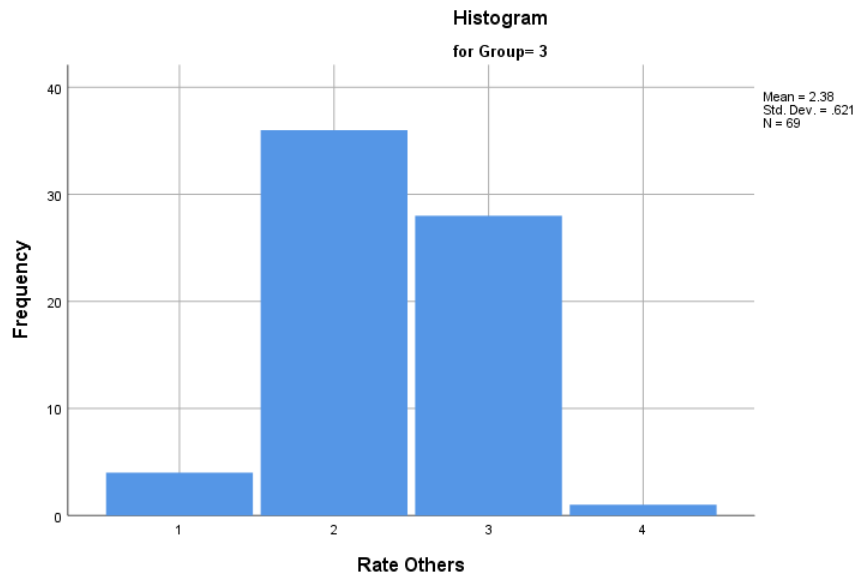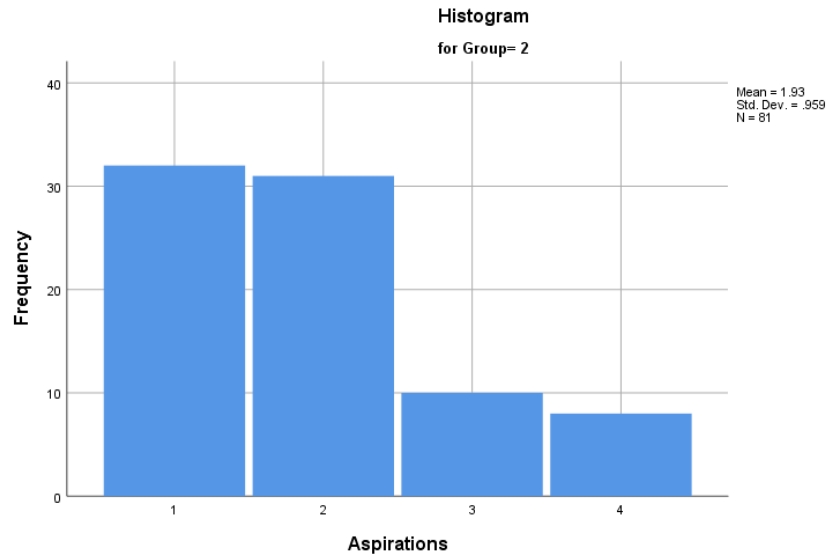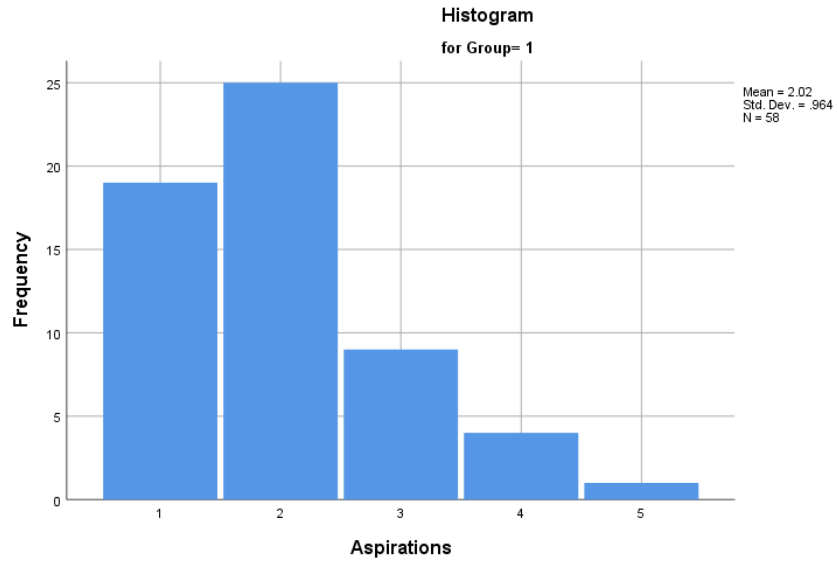

Histogram for Group= 1

Mean = 2.02
Std. Dev. = .964
N = 58

Histogram for Group= 2

Mean = 1.93
Std. Dev. = .959
N = 81

Histogram

for Group= 3

Mean = 2.01
Std. Dev. = .837
N = 68

Histogram

for Group= 4
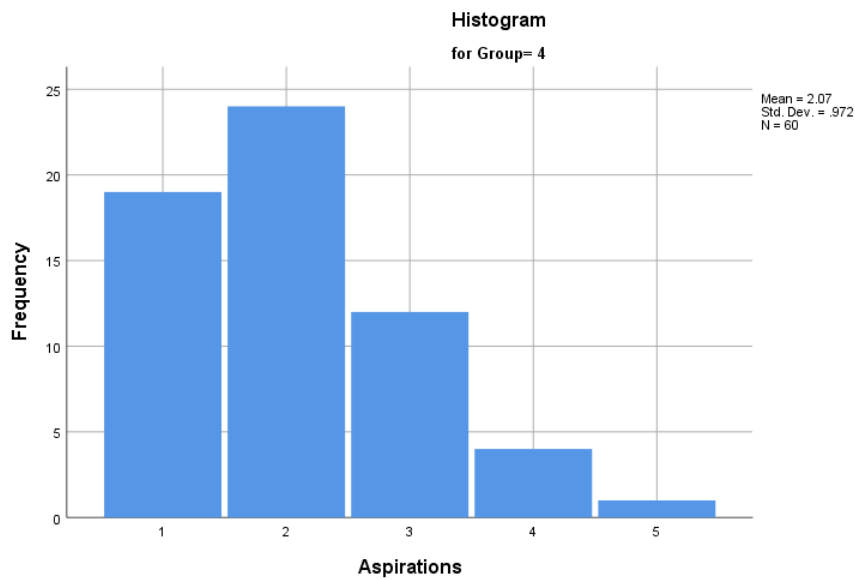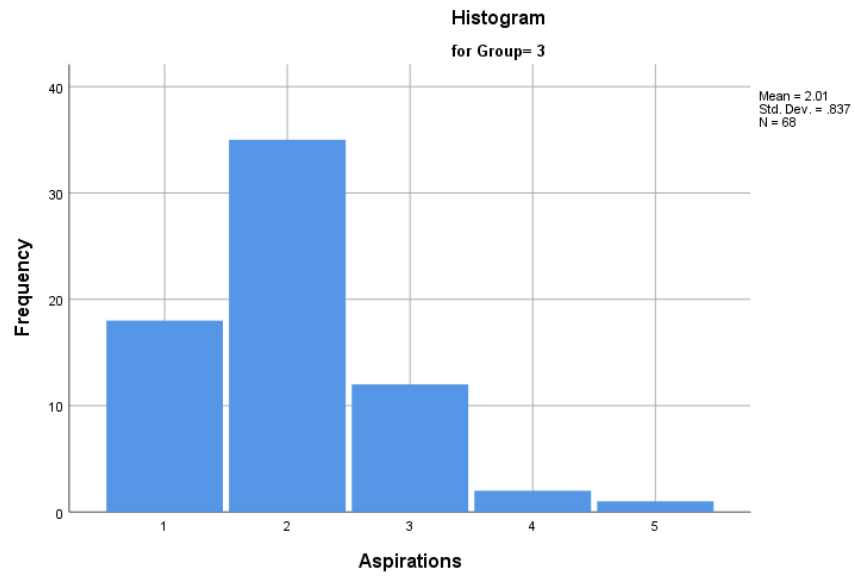
Mean = 2.07
Std. Dev. = .972
N = 60

Figure 17. Career Aspirations Histograms by Group

APPENDIX P

Percentages of Responses to Ratings According to Group

The following tables contain the percentage of responses for each rating, separated by group, for each of the three questions below.

1. How would you rate your leadership skills? (Rate-Yourself)

2. How do you believe others would rate your leadership skills? (Rate-Others)

3. How interested are you in advancing your career in higher education? (Career Aspirations)

Percentages are rounded, so totals may range from 99.9 – 100.1, due to rounding error.

Table 47

Percent of Responses for the Rate-Yourself Question Per Rating by Group

Group	1	2	3	4	5
Group 1 - Gender	8.2	60.7	27.9	3.3	0
Group 2 – Christian Affiliation	9.8	57.3	32.9	0	0
Group 3 – Both	2.9	53.6	42.0	1.4	0
Group 4 - Control	8.3	71.7	18.3	1.7	0

Table 48

Percent of Responses for the Rate-Others Question Per Rating by Group

Group	1	2	3	4	5
Group 1 - Gender	11.5	55.7	31.1	1.6	0
Group 2 – Christian Affiliation	14.6	51.2	32.9	1.2	0
Group 3 – Both	5.8	52.2	40.6	1.4	0
Group 4 - Control	15.0	65.0	18.3	1.7	0

Table 49

Percent of Responses for the Career Aspirations Question Per Rating by Group

Group	1	2	3	4	5	6
Group 1 - Gender	31.1	41.0	14.8	6.6	1.6	4.9
Group 2 – Christian Affiliation	39.0	37.8	12.2	9.8	0	1.2
Group 3 – Both	26.1	50.7	17.4	2.9	1.4	1.4
Group 4 - Control	31.7	40.0	20.0	6.7	1.7	0

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ABSTRACT

**STEREOTYPE THREAT AND ITS EFFECT ON CHRISTIAN WOMEN
IN SECULAR HIGHER EDUCATION ADMINISTRATION**

by

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Advisor: Dr. Carolyn Shields

Major: Educational Leadership and Policy Studies

Degree: Doctor of Education

Stereotype threat is a highly supported phenomenon in social psychology. It is defined as the fear, whether consciously or subconsciously, that one will confirm within oneself a negative stereotype about one's social or identity group, through poor performance or self-evaluation. This study attempts to determine if stereotype threat could be a contributor to the underrepresentation of women, and especially Christian women, in higher education leadership. To investigate possible causes of this, a set of surveys was completed. The first included questions regarding employment, race, religion, education, and politics. It was used to determine stratified samples for the second survey. The second survey's introductory questions changed according to which of the four stratified groups they were placed into. Group 1 was asked their gender before continuing the survey, group 2 was asked their Christian affiliation, group 3 was asked both demographics, and group 4, which was the control group, was asked neither. Each group was then asked a series of leadership questions. The three of interest to this study were "How would you rate your leadership skills?" "How do you believe others would rate your leadership skills?" and "How interested are you in advancing your career in higher education?" They were rated on a 5-point Likert scale. It was found that there were significant differences in the mean ranks for both the rate yourself and

how others would rate you questions. Through post hoc pair-wise analyses, it was found that the significance was only between the control group and the group that received both demographic questions before completing the survey. The career aspirations question had no significant differences in mean ranks. In the cases where significance occurred, it was observed that the means for asking only one demographic were lower, but not in a statistically significant manner. However, when both demographics were asked, they rated themselves significantly lower. As a result, it is concluded that stereotype threat has a significant effect on Christian women in higher education regarding leadership. This, in turn, may be one of the contributors to the underrepresentation of Christian women in higher education leadership.

AUTOBIOGRAPHICAL STATEMENT

Kimberly Morgan, M. Ed, MAAM, has more than 19 years' experience as a mathematics educator, academic advisor, and leader in multiple venues. She has a Bachelor of Science in Mathematics, a Master of Education in Secondary Education, and a Master of Arts in Applied Mathematics. She has taught mathematics in K-12 and higher education settings. She has also been a Math Coordinator in an alternative admissions program at a major institution. Presently, she is an academic advisor in the Math Department of that same institution. Her extensive experience in the educational environment has added to her expertise as a leader in that venue, where she leads multiple committees and institutional initiatives both within and outside of her department.