

ARE SOCIALLY CONSTRUCTED BIASES KEEPING THE GLASS CEILING ALIVE?

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by
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Abstract

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This study evaluated the impact of self-reported agency on socially constructed biases in relation to promotional opportunities in the Class 8 truck manufacturing industry. The assessment was deployed in the summer of 2020 amid the COVID pandemic and subsequently limited the number of companies involved in the study. Using a single company in the study allowed for a more in-depth analysis and, in turn, more targeted conclusions. The study utilized feminism as a framework to evaluate women's oppression. Postmodern feminism was employed to explore power gender relations, and the theory of social constructionism guided the investigation of formed biases. Lastly, the personal selves theory illuminated the impact one's perception of themselves may have on their desire to apply for promotional opportunities. The Circumplex Scales of Interpersonal Values (CSIV) was distributed to evaluate a set of self-reported agentic and communal values. Out of the sample size of 449 employees, the groups were narrowed to evaluate agency 1) among women who were denied promotional opportunities and felt qualified to lead and 2) men who were current leaders. There were no statistically significant findings among the agency value of these two

groups.

Given the large amount of data collected beyond what was utilized in the initial hypothesis, further exploratory analyses were of interest. Data from the pre-questionnaire paired with agency and communion values from the CSIV were used in additional explorations. Findings showed that there was statistical significance when looking at the communal values of men. The data also showed that men were more likely to apply for promotional opportunities, and when they applied, they were more likely than women to be promoted. In addition, there was a high preference for agency for both men and women when considering only those who participated in professional development and training opportunities. These findings prompted specific recommendations for the company. While the findings are not generalizable to the industry, this study is replicable and can be used to gather further insights.

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I am most thankful and always humbled by my Lord and savior, Jesus Christ. I would have never made it without Your steady hand weaving my story. I am endlessly amazed at Your mysterious ability to impress upon each and every strand of life. May everything that prospers from this journey and the ones to come be used to glorify You.

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I am learning each and every day what it means to have the *opportunity* to pursue higher education. I consider myself fortunate on all accounts and hope to be a greater part of offering that opportunity to others.

Dedication

This study is dedicated to my grandfather, Wesley Tuttle, who passed away in February of 2019. Dealing with your loss is often one of the most difficult things for me to process. You were my cheerleader and the first person I always called with news of any kind. You asked me every single time we spoke about this dissertation. I only wish I could tell you now that I have completed this journey.

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Chapter 1: Theoretical Foundation

Personal Narrative

I grew up in a world where I had perceived that women experienced a fair or equitable place in society or at least a place where boundaries like the “glass ceiling” were only acknowledged by women who were not strong enough to overcome them. For me, the oppression of women ended in 1920, and “feminists” were synonymous with women who were too weak to overcome limitations as a result of not putting forward the necessary efforts. In everyday conversations, discourse concerning feminism and women’s interests is rarely heard unless it is framed around claims concerning gender discrimination. However, it is not only men who perceive conversations around gender equality and equity to be frivolous. Some women, who hold a range of positions and have made significant contributions, hold the same perceptions. As a woman who fit this description, I found that listening to or taking part in conversations that framed feminism as negative only exacerbated my own dismissive attitude toward this theory.

In 2017, I met the first person to ever truly open my mind to learning more about feminism. Anna arrived at our corporation and unexpectedly caught most of our colleagues off guard. She was direct in expressing her beliefs and relaying her thoughts, which enabled her to empower people to analyze and constructively critique their own views and ways of thinking. Her unprecedented support, coupled with open and critical feedback, enabled her to challenge the status quo. She embraced the idea that all employees aspire to be contributors to the organization but do not always know how best to contribute. As a leader, she saw her role as supportive and essential to self-discovery. From my own observations, the way she was perceived by others caused them to be much more reserved or initially hesitant to make a connection with her.

Her direct and forthright approach to managing the workforce was not the typical one that was expected in a male-dominated work environment. Anyone who knew Anna, one of the youngest female directors in the company, could attest that she “meant business.” Her no-nonsense personality may be attributed to her own cultural connections with feminism. For example, Anna’s mother instilled in her the love of Simone de Beauvoir. At 19, Anna read de Beauvoir’s *The Second Sex*. Anna grew up in Iran during a time when women’s equality was basically nonexistent but later spent many years as a post-graduate student in Sweden, a country progressive in women’s rights. Anna shared her knowledge of how to put feminism into action with me. This ignited a fire in me to pursue a research study using feminist theory as the underlying framework. In doing so, she challenged me to be uncomfortable in and outside of my workspace; she intentionally and deliberately dared me to think about how to stretch myself, and she caused a genuine and sustainable shift in my thinking regarding women’s roles in the workplace.

My personal experience with feminism in action every day of my work week opened my eyes to many things I had not previously stopped to observe. Anna submitted her application to a vice president (VP) position and was subsequently denied that opportunity. Management stated that her peers view her as “too aggressive” to take on the role. Anna’s experience kindled a new interest for me as a woman in the same corporation, hoping to one day achieve a high-level position. In the past, I had been told that I must be “more aggressive” to take on a leadership role. I quickly recognized the conundrum around perceived aggressive and non-aggressive behaviors and how they influence the promotion of women. As a result, I began a relentless effort to start reframing my research objective. While it is visibly evident that the industry I work

in is far behind in promoting women to leadership roles, the real question is *how* we can start to better understand this problem in order to create change in a viable way.

Within my research, I ventured to write for both myself and a general audience. My ambition was to reduce the abstractness of academic compositions because reading complex information without relatable examples was one of the initial limitations on my connectedness with feminism. In fact, there is such a broad range of literature on feminism itself, one of my first goals was to re-understand feminist theory with the new perspective of personal experiences. In order to do this, I began searching for directional content by which I could actively evaluate the most significant authors and contributions to feminism that could be used to illuminate my research. Among countless other impactful sources, I was fortunate to come across a course overview titled “Theory, Feminism and Feminist Theory” by Dr. Weiss, which set a base framework for my literature review of feminist theory.

Although I was unable to take his course, I contacted Dr. Weiss for his approval to use pieces of his clearly articulated guide as an indirect source. His guide was essential for deepening my understanding of feminist theory and ultimately led me to more direct sources. Throughout this work, I utilized the exploration of frameworks and existing literature to better understand the underrepresentation of female leadership in the Class 8 truck manufacturing industry. Assessing the revenue generated by the automotive industry against other industries shows that it is one of the most economically important sectors in the world (American Automotive Policy Council, 2018), and there is a proven gender gap in management, where women are underrepresented (Bureau of Labor Statistics, 2016). At a macro level, my purpose in this study is to examine the impact of gender-based agency on upward career mobility in the Class 8 manufacturing industry workplace.

A theoretical framework provides both a methodological approach for understanding research questions and the lens through which such questions will be reviewed (Kivunja, 2018). Given my primary interest in gender equity, the history and origins of feminism became the cornerstones of my study. First, I explored how the overarching feminist theory could provide a holistic framework and identified three additional sub-theories that significantly contributed to understanding the research question. Postmodern feminism theory, which was highly influenced by Foucault, created a layer of intricacy among the association of gender and power. Second, I applied the social constructionism theory to provide a context for both the cultural and individual construction of meaning in the workplace. Lastly, I used the possible selves theory to provide a background for understanding how an individual's thinking can greatly influence their future behaviors.

While integrating all of these theories created a very broad framework for the research, I believe each was an essential component. Each offered substantial value by illuminating the critical frames through which the research should be viewed. In this research, I reviewed agentic and communal interpersonal characteristics of both men and women to better understand how their dispositions influenced their upward mobility. Additionally, I examined how each individual's perception of their own capability to become a leader contributed to deciphering potential bias.

Key Definitions

1. *Agentic*: Agentic derives from the term "agency" and represents a person who demonstrates assertiveness, competitiveness, and independence (Bakan, 1966).

2. *Class 8 Manufacturing Industry*: The production of Class 8 trucks (heavy-duty, with a vehicle weight of 33,000 pounds or more; Wagner, 2019). For the purposes of this study, the full supply chain will not be referenced, only the original equipment manufacturer (OEM).
3. *Communion*: Communion derives from the term “communal” and represents a person who demonstrates nurturing and sympathetic characteristics (Bakan, 1966).
4. *Glass Ceiling*: A major corporate barrier that obstructs women’s advancement opportunities and upward mobility (Oakley, 2000).

Theoretical Concepts

1. *Feminism*: Examining a potential cause and consequence of oppression in the Class 8 manufacturing industry in an effort to emphasize (and act on) strategies of awareness (Aptheker, 1989; Aptheker et al., 2006; Bunch, 1987; Flax, 1987; Frye, 1983, 1990).
2. *Postmodern Feminism*: Examining the relationship between gender and power in an effort to illuminate oppressive structures in a male-dominated industry (Butler, 1990; Foucault et al., 2000; Foucault & Gordon, 1980; Watson, 2016; Weedon, 1987).
3. *Possible Selves*: Examining the belief that one’s self is equipped to lead in an organization (Markus & Nurius, 1986; Oyserman & James, 2009).
4. *Social Constructionism*: Indirectly examining a male-dominated work culture’s constructed ideal around gender as it pertains to upward mobility (Berger & Luckmann, 1991; Crotty, 1998; Gergen, 1985; Lorber, 1994).

Feminist Theory Origins and Significant Contributions

Creating a cohesive definition of feminist theory is challenging because of its complex history with diverse interpretations across ethnicities, social classes, gender identities, and other demographics. After extensively reviewing the introduction of feminist theories, it became quite

clear that a unitary and agreed-upon definition does not exist. I will not attempt to review feminism in its entirety but will discuss sub-components that contribute to understanding the modern-day glass ceiling. Often, the topic of feminism can be approached negatively by those interpreting it, focusing on whichever component is found to be the “. . . most objectionable element and, on that basis... reject[ing] it” (Tyson, 2015, p. 79). In order to combat such negativism, bell hooks (2000) enthusiastically conveyed her desire to provide the general public with a simple definition of feminism, one that was not academic or difficult to understand.

For those who, like myself only a few years ago, would not dare embrace feminism and viewed it mainly as a hate movement against men, bell hooks (2000) provided an easier way to understand the underlying goals of feminism. She supplied the following definition: “feminism is a movement to end sexism, sexist exploitation, and oppression” (hooks, 2000, p. viii). bell hooks uses this definition of feminism to declare a singular goal to which all feminists ascribe. However, the definition of feminism is much more complex, as are most ideologies that must be interpreted; each person who interprets feminism uses their own experiences to create meaning. To emphasize the complexity of such interpretation, Beasley (1999) expresses the following:

. . . feminists are inclined—frequently deliberately—not to define what they mean by feminism, sensing dangers such as internal policing of both the field and of feminists by those who might like to determine what is to be included (or not), as well as the potential danger of constricting the unstable vitality of its meanings. (p. xiii)

The evolution of thought and the lens through which feminism is viewed draws heavily on one’s personal familiarities and life encounters. Inevitably, those experiences create major differences and views, limiting the synchronization of a complete definition of feminism.

Through my lens as the researcher, feminism will refer to examining the causes and consequences of oppression in an effort to emphasize (and act on) strategic objectives to liberate women. Jane Flax (1987), in “Women Do Theory,” explains theory as an individual and unique way to analyze one’s common experiences. She reflects on her own experiences and identities (therapist, philosopher, feminist, and political theorist), which constitute her process for making meaning. The premise of Flax’s (1987) thinking concerning theory is that everyone takes part in theorizing. For example, one may draw conclusions very quickly about people with whom they interface. If one does not carefully examine how those conclusions arrived, they may never be able to fully examine their assumptions. Though drawing such conclusions so quickly is initially done without conscious knowledge, once it is realized, the rationale can be explicated (Flax, 1987).

In order to formalize theory, the rationale behind making choices becomes a more conscious process. Theory is used to better understand the world around us and to assist us in answering important questions (Flax, 1987). According to Flax, feminist theory enables us to reflect upon the power imbalance between men and women as well as gain an understanding of how and why women’s oppression exists and evolves. In addition to simply using theory to make meaning, Flax believes there is an undeniable relationship between feminist theories, concluding that the true origins of feminism cannot be neutral. A key assumption regarding feminism is that “all feminist activity can be seen as a form of activism” (Tyson, 2015, p. 88). Taking up the theory requires a commitment to implement actions by connecting abstract ideas to illuminate oppressive structures and ultimately create lasting change (Flax, 1987). Bridging the notable gap between activism and feminism is a core principle for many feminists, including Marilyn Frye (1983), who is known for her work as an activist.

Frye (1983) uses her own life experiences to write about and teach radical feminist theory. Her famed analogy of a bird in a cage illuminates a general understanding that there is difficulty in seeing the holistic picture of oppression. Someone assessing a bird in a cage may only see one bar (or obstacle) of the cage at a time instead of seeing the overarching configuration of the cage. Frye (1983) believes that “whether it is deliberate or not, people can and do fail to see the oppression of women because they fail to see macroscopically and hence fail to see the various elements of the situation as systematically related in larger schemes” (p. 2). In other words, the oppression of women can be difficult to comprehend because often, the small inequities are seen individually and not tied together to explicate the full view (the root cause) of women’s oppression. This metaphor is an attempt to convey what Frye (1983) referred to as the double bind, which is still commonly used in feminist discourse and publications that seek to illuminate oppression. The double bind is described as a dilemma in which choosing either alternative results in a negation of the other alternative; in relation to feminism, it results in oppression (Frye, 1983).

Examples of double binds can be found in a variety of settings and environments. For example, double binds found in the workplace often create quandaries for women leaders as they are faced with limited and unfavorable options regardless of which leadership style they choose. Women risk being labeled and perceived as weak, incompetent, and soft when they portray themselves consistent with female gender stereotypes, such as spending time developing relationships and expressing concern for others. On the other hand, when women’s actions coincide with predominately male gender stereotypes, such as assertiveness, directness, and ambition, they may be deemed callous (Catalyst, 2007).

Such double binds help in understanding how gender stereotypes impact the oppression of women. Frye (1983) has a unique definition of oppression:

The root of the word “oppression” is the element “press.” The press of the crowd; pressed into military service; to press a pair of pants; printing press; press the button. Presses are used to mold things or flatten them or reduce them in bulk, sometimes to reduce them by squeezing out the gases or liquids in them. Something pressed is something caught between or among forces and barriers which are so related to each other that jointly they restrain, restrict or prevent the thing’s motion or mobility. Mold. Immobilize. Reduce.
(p. 54)

This definition is helpful in understanding the impact and magnitude of oppression as it comes into existence and is maintained. In short, the experience of oppression is the result of a multitude of barriers that prevent upward mobility. In “The Possibility of Feminist Theory,” Frye (1990) endeavors to explain how the seclusion of an individual woman’s experiences lead to a fragmented and isolated understanding of feminism. Without further exploration of such deep and rich encounters, it is difficult to achieve the goal of feminism, which is to create cohesive patterns and supporting evidence for women’s oppression.

Frye’s (1990) concern is that historically, the dominant approach to feminist theory focuses on generalizations without adequate conclusions. In other words, as feminism emerged, it created more segmentation and branches of feminism, tangling the meaning and limiting any foundational inferences that could be drawn upon (Frye, 1990). The experiences that are used to create meaning, whether they be collective or individual, cannot be understood unless they are appropriately applied. This requires two significant approaches in feminism: 1) creating meaning and 2) applying its relevance to the larger population. Therefore, it becomes necessary to define

and understand relevant patterns. As such patterns are created, an outline is formed, and meaning begins to take shape. Aptheker sought to create her own discovery of oppression after her mother passed away in the book *Intimate Politics: How I Grew Up Red, Fought for Free Speech and Became a Feminist Rebel* (Aptheker et al., 2006).

This memoir sheds light on Aptheker's revelation of events and social structures that caused her to repress specific parts of her life in order to obtain success and acceptance as a daughter, political activist, and academic. Parallels with Aptheker's (1989) much earlier publication, *Tapestries of Life*, can be drawn as she discusses the way one must search for meaning in the daily activities of one's life. Aptheker offers the following working definition of feminism: "The collective empowerment of women as autonomous, independent human beings, who shall have at least as much to say as men about everything in the arrangement of human affairs" (Aptheker et al., 2006, para. 19). Aptheker et al. (2006) also clearly articulates her view of how women's lives become disjointed in regard to their constant subordination to men. In order to mitigate the risk of predetermined outcomes for women, Aptheker (1989) encourages the mapping of events. In other words, Aptheker emphasizes the criticality of documenting women's reality as they explore the details of their own lives to understand patterns and to make a sincere connection from one's experiences to a greater actuality. When women turn experiences from their lives into anecdotes, they are able to make sense of otherwise puzzling or random events. In the overlap of the stories and mappings of women's lives, an immediate correspondence between their realities can be seen and ultimately explained (Aptheker, 1989).

Charlotte Bunch (1987), known for her passion and devotion to promoting women's rights, explains why it is critical that theory continues to hold a significant place in feminism

rather than solely depending on personal stories. In her compelling essay, “Feminism and Education: Not by Degrees,” Bunch (1987) states:

Theory enables us to see immediate needs in terms of long-range goals and an overall perspective on the world. It thus gives us a framework for evaluating various strategies in both the long and the short run and for seeing the types of changes that they are likely to produce. Theory is not just a body of facts or a set of personal opinions. It involves explanations and hypotheses that are based on available knowledge and experience. It is also dependent on conjecture and insight about how to interpret those facts and experiences and their significance. (p. 246)

Bunch believes that feminist theory allows women to interpret the world in which they live, allowing them to create a personal vision to change it. She puts forward four components of a theory—description, analysis, vision, and strategy—as means of transforming findings into actions (Bunch, 1987). The ultimate goal in exercising these four components is to adequately frame women’s realities and expose their subjectivities (Bunch, 1987; Tyson, 2015). Tyson (2015) cautions that when utilizing such an approach (interpreting from our own lens), we must be inherently aware of the biases we bring to our own interpretations.

It is critical to ensure that feminist research is not only a complex compilation of stories. Although these stories are crucial in enhancing our understanding, we must also draw on the interpretation of the facts—a process that both uses and produces knowledge. Tyson (2015) notes that while it is problematic to avoid our subjectivity, it is more important that “we include it in our interpretation as fully as possible, so that others will be able to take it into account when evaluating our viewpoints” (p. 91).

While this discussion provides only a brief overview of the origins and significant contributions of feminism, the most relevant expressions pertaining to my research topic have been explored. The key principles and assumptions of feminism are summarized below.

Key Principles and Assumptions of Feminism

The underlying goal of feminist research is to emancipate women, expose bias and inequity, and increase knowledge about women's oppression (Ferguson et al., 2016). Several waves of feminism across the world have boldly created a response to the changing structures that influence women's lives; however, many of the key differences between these waves arise as women conceptualize oppression and respond to it (McAfee, 2018). The history and complexity of feminism have created an extremely diverse set of beliefs, allowing us to "increase our understanding of women's experience, both in the past and present, and promote our appreciation of women's value in the world" (Tyson, 2015, p. 114). The continued evolution of feminism has created a robust platform, enabling paradigm shifts in thinking about the repression of women.

The diversity of feminist theory is defined metaphorically as a lens to organize and understand the social reality of women's everyday life experiences (Ferguson et al., 2016). The lens through which society has generally been interpreted is that of a man's (Aptheker et al., 2006). Therefore, to present society from a different lens, feminists share a common goal to illuminate the suppressed experiences of women that highlight the concept of power as a reflection of gender relations. According to Powell (2013), the overall strategy of feminism "involves exposing how male values come to be predominate and perpetuate particular views of the social and natural worlds. In the process it uncovers how silences and absences also structure ways of thinking about women" (p. 27).

As such, feminism can offer women a lens to see themselves through, creating an opportunity to supplant any preconceived notions about the roles they should have within society. Ultimately, feminist theories offer a powerful platform for women to challenge prescribed identities while generating unique roles and identities for themselves (Powell, 2013). According to Tyson (2015), “One of feminism’s strengths is the freedom with which it borrows ideas from other theories and adapts them to its own rapidly evolving need” (p. 90). As an overarching theory, feminism provides a practical integration and application of the theories of postmodern feminism, social constructionism, and possible selves to reveal unknown biases that exist today.

Assumptions of Gender and Power in Postmodern Feminism

Most notable concepts of feminism convey assumptions that gender shapes power relations. The impacts of gender-based behaviors are thought to be consequences of long-standing institutional structures which shape and reinforce the distribution of power at all levels of society (Flax, 1987). Gender is a highly debated and contested topic in the realm of feminism, and while not all scholars have the same view of gender, they have all seemingly problematized it (Flax, 1987). The “fundamental purpose of feminist theory is to analyze how we think, or do not think, or avoid thinking about gender” (Flax, 1987, p. 626). Flax (1987) notes that it is not only important to evaluate how we construct our personal definition of gender but also to consider what is excluded from our definition in order to continuously refine it.

Furthermore, the construction of gender does not happen merely at the individual level but is also constructed by individual cultures, institutions, governments, and similar groups. To illuminate the implementation of gender construction, consider legislative government authorities who can empower (or disempower) individuals to define their gender (Allen, 2016).

In June 2019, North Carolina House Bill 142, which “enshrines the right of transgender individuals to use bathrooms that match their gender identities in North Carolina public buildings,” was passed (Kennedy, 2019, para. 1). The government took a legislative stance to disassociate gender and sex and allow individuals to interpret and express their own gender identity. This position follows postmodern feminist thinking around the construction of gender as fluid and self-definable.

Postmodern feminists segregate sex and gender terminologies and deem rigid stereotypes concerning men and women’s gender roles as erroneous in an effort to support the redefining of gender from its historical binary attributes. Women have historically been defined by their tendency to be “nurturing, mothering, taking care of and being in relation with others” (Flax, 1987, p. 637), while “men [have been] said to have more interest in utilizing the power of abstract reason (mind) . . . and to be aggressive and militarist” (p. 637). It is important to consider how such notions have impeded our everyday thinking, regarding not only our own gender but how we define the gender of others.

In fact, Frye (1979) stated that “unless we see gender as a social relation, rather than as an opposition of inherently different beings, we will not be able to identify the varieties and limitations of different women’s (or men’s) powers and oppressions within particular societies” (p. 641). Postmodern feminism attempts to move the needle on gender definition by bringing a highly controversial perspective to the table, which shifts the interpretation of identity, long thought of as permanent or fixed (Butler, 1990). Rather, the construction of gender is defined as discursive and capable of changing via its dependency on particular experiences (Butler, 1990).

Judith Butler, a feminist who is well known for her work surrounding the articulation of gender, suggests that “gender is not a noun” (1990, p. 25) and should not be treated as such. She

further this notion by emphasizing that gender is better suited as a verb or compilation of actions. Butler (1990) supports her claims with Simone de Beauvoir's (1973) philosophy that "one is not born a woman, but, rather, becomes one" (p. 8). This paradigm shift in thinking reforms the relationship between gender and sex, ultimately implying that the definition of gender can be indefinitely reconstructed by the one who is interpreting it. Simone de Beauvoir famously endeavored to rethink the existing definitions of women historically created by men in order to forgo the imposed societal and cultural definitions (Butler, 1994). Her intention was to call upon women to define themselves by rising to the forefront of analysis and becoming the subjects of research (Butler, 1994). While this viewpoint provides a platform for women to redefine the female gender according to their own interpretation, not all feminists agree with de Beauvoir and have varying degrees of appreciation for the mysteriousness around the definition of gender and the disassociation between gender and sex.

The postmodern feminism gender paradigm, while highly contested and contentious, parallels Foucault's rejection of traditional ideas of power. Both infer that structures like gender and power are in constant motion and impacted by variables of which we should become self-aware. Foucault's general view of power is that it does not belong to an individual (or institution) nor can it be produced individually or institutionalized (Taylor, 2011). Power is thus articulated as "co-extensive with the field of social relations," drawing heavily upon the constant compilation of individual decisions (Taylor, 2011, p. 15). As such, the interaction of independent exchanges maintains the ability to constantly reshape power. In other words, the desire to influence others, acting on such desire, and the variable responses of those interactions produce power structures (Foucault & Gordon, 1980).

Postmodern feminism “raises questions about how selves are constituted, how power-knowledge relations change across times, places, and in the context of different social, political and cultural contexts” (Wright, 2004, p. 20). Such questions support the effort to empower and make individuals aware of the operations of power constructs, eventually persuading action. Foucault’s account of power is helpful in denoting the self-defining identities and relations of individuals as well as their ability to resist domination. Weedon (1987) claims that feminisms are directed at changing existing power relations between women and men in society. These power relations structure all areas of life, the family, education, and welfare, the worlds of work and politics, culture and leisure. They determine who does what and for whom, what we are and what we might become. (p. 1)

According to Foucault’s definition of power, there are no standardized power relations between men and women. However, if an individual was to assume a role of power, they could take actions to reverse it if they so desired (Foucault et al., 2000). Hence, gender and power coexist in continual oscillation between empowerment and oppression (Foucault & Gordon, 1980). Though many critiques of postmodern feminism exist, it is important to note that it has significantly enhanced the feminist debate by questioning grand narratives as a way to understand and interpret society.

The selected areas of postmodern thought, power, and gender shed light on the discussion of oppression and present opportunities for discovering the way forward. If we imagine a world where relationships between gender and power are fixed, the opportunity to impact gender equality becomes very limited. New ways of discerning and coming to know and understand power constructs are essential for progressing the ideals of feminism. While these concepts can be abstract without the application of specific cases, they are cornerstones for furthering this

research. Pierre (2000) claims that “the critic must always make room for a new concept, the reconstitution, which, in turn, must be deconstructed” (p. 483). Therefore, construction carves out space and generates new knowledge by its very design. This notion provides the basic premise for including social constructionism in the ideology of this research.

Social Constructionism

Broad sweeping similarities between postmodernism and social constructionism exist in their agreement that there is no single source of truth. Social constructionism proposes ways in which relative truths are brought into existence. To apply social constructionism, a person’s reality must be brought into question and further explored. Through the lens of social constructionism, reality takes on different forms of meaning throughout various stages as it is continuously constructed and reconstructed. Realities are socially defined yet subjected to the individuals’ experiences of everyday life, therefore implying that meaning can only be ordained when we intentionally engage with the realities of our environment (Crotty, 1998).

Social constructionism also includes deconstructing the ways in which social phenomena are generated, established, understood, and become fleeting realities. Over time, as meaning transfers from one culture to another, experiences, contexts, and other factors derive new contextual meanings (Gergen, 1985). Thus, selected meanings are preserved through a social process, which binds knowledge with social action, sustaining some patterns of social interaction and excluding others (Gergen, 1985). The constant exchanges among individuals play a significant role (either consciously or unconsciously) in influencing presumed truths.

To apply this theory to a practical situation, consider a current common example. In the culture of a male-dominated workplace, a reality has been constructed regarding power. The company has proposed that pantsuits be worn in all formal business meetings in order to present

a professional representation for both the individual and the company. Inexplicitly, the company has expressed that dictating the dress code will grant assurance that a professional status (a form of power in the corporate world) will be maintained. This socially constructed idea is deemed and accepted as truth by the majority and thereby represents an invented reality of that group, resulting in a documented guideline to further this ideology. However, social constructionism does not always manifest in formalized rules and regulations. It is commonly, and more simply, a compilation of understood conjectures. New interactions can either confirm or deny these conclusions and continue to maintain these ideals or choose to revise or remove them altogether.

Berger and Luckmann (1991) propose a complex view on how society is constructed using social interactions. Two realities, the subjective and the objective, are proposed to act in tandem but “are not coextensive” (Berger & Luckman, 1991, p. 153). The magnitude of the complexity of the world makes it near impossible for all aspects of society to be examined. Externalization, objectification, and internalization occur in a continual non-linear process to support these two realities. Externalization is the process by which a product (values, norms, beliefs, etc.) becomes recognized outwardly from those who have socially interacted to create it. Objectification happens as the product takes on new definitions outside of the initial meaning, which was previously externalized. Internalization occurs when the “objectivated social world is retrojected into consciousness in the course of socialization” (Berger & Luckman, 1991, p. 78). In other words, through these processes, there is a continual negotiation of what becomes objective to the individual as well as to society.

An understanding of this process is required to propose ways in which norms have been constructed, and if necessary, to sanction a deconstruction of those norms. Constructionism supports the view that knowledge and truths are created and therefore allows for an

understanding not only of the current power and gender structures in the workplace culture but also for the creation of opportunities to reform these definitions. Crotty (1998) notes the danger in social constructionism as he “emphasizes the hold our culture has on us: it shapes the way we see things” (p. 58). Social constructionism is especially powerful in examining how the relationship between gender and power generates an intertwining complexity in the workplace culture. As such, gendered constructions may have an impact on the possible selves that individuals develop.

Possible Selves

One’s personal identity is created through a collection of vulnerable thoughts and consensus-making around past behaviors, present status, and future possibilities (Markus & Nurius, 1986). Markus and Nurius (1986) state that “possible selves are the cognitive components of hopes, fears, goals, and threats, and they give the specific self-relevant form meaning, organization, and direction to these dynamics” (p. 954). The process by which these components are formed is continually influenced by external factors whereby both positive and negative identities can coexist and be rationalized at the same time (Markus & Nurius, 1986). One may see themselves as the successful self, the loved self, or (from another viewpoint) the incompetent self, or the alone self. The collection of optimistic aspirations that creates a desired persona (i.e., the successful or loved self) is the *hoped-for self*. Likewise, *feared selves* are possible selves that an individual wants to avoid (i.e., the incompetent or alone self; Markus & Nurius, 1986).

The concept of the possible self provides a core foundation, and ultimately a theoretical framework, for understanding how one’s idealized future identities influence their behaviors. The importance of the possible selves theory lies within its ability not only to consider a future

reality but also to assess the current reality and any potential gap between the two (Markus & Nurius, 1986). Often, identifying this gap can result in motivation to either attain the hoped-for self or avoid the feared self. The concept has varying grades of plausibility based on the degree to which the individual institutes and idealizes the possible self. According to Markus and Nurius (1986),

The nature of these possible selves, their importance to the individual, their degree of cognitive and affective elaboration, and their link to specific plans and behavioral strategies will, of course, vary depending on the individual's position in the life span. (p. 958)

For example, someone who has a robust and salient understanding of their possible selves may go to the extent of documenting explicit steps and goals to attain the vision of their hoped-for self (Lee & Osyterman, 2009). This is also known as their personal efficacy or belief that they can perform a set of behaviors that will ultimately lead to the attainment of the hoped-for self. In addition to self-efficacy, the level of outcome expectancy, or the likelihood of a behavior translating into a desired outcome, also creates a layer of differentiation among individuals regarding their concept of possible self (Markus & Nurius, 1986). In examining a person's self-efficacy and outcome expectancy, the degree to which people initiate and configure their actions, both to fulfill their hoped-for selves and to avert the realization of their feared self, can be better understood.

Self-concepts within the possible selves theory include not only individual identities but also those formed within a societal framework. Developing a self-concept creates opportunities "to reveal the inventive and constructive nature of the self" while also, and perhaps even more importantly, projecting "the extent to which the self is socially determined and constrained"

(Markus & Nurius, 1986, p. 954). In other words, the defining of oneself is not limited to the singularity of personal attributes and goals; one also defines themselves in accordance with social memberships, cultures, and norms (Oyserman et al., 2015). These group-based identities are likely to include societal expectations regarding gender and power. For example, one may not see their future possible selves as a leader in their company because of how their socially constructed definition of power and gender relates to their corporate culture. The exploration of how an individual's projection of their ability to become a leader correlates to their desire for power is of utmost interest.

Critique of Theories

In her book, *What is Feminism, Anyway*, Chris Beasley (1999) states that “any brief, neat account of feminism is likely to be disputed” (p. xii). Although she is not a critic of feminism, she alludes to the fragmented and fluid nature of feminism as she seeks to explore her own account of the theory. The many critiques of feminism point to the contradictions within the numerous interpretations and uses of feminist terminology, maintaining the accusation that feminists alter the meaning of feminism to support their own individual agendas. Multiple examples could be expanded upon to include contradicting views on race, ethnicity, sexual orientation, and religious standpoints. Martin (1994) observes:

[Feminism represents] a classic case of “damned if you do; damned if you don’t”; leaving no viable feminist change strategy, other than a pragmatic, issue-specific alternation between . . . calls for equality (in pay, promotions, etc.) and calls for difference (maternity leave, number of bathrooms, etc.). (p. 406)

In essence, the differentiation of women throughout alternative feminist discourses and practices depends on a limitless number of unacknowledged assumptions. The combination of these

assumptions escalates when critiquing postmodern feminists because of their notion that an objective reality does not exist. Furthermore, the development of new theories of feminism, such as postmodern feminism, can alter the way previous theories are perceived. According to Watson (2016), “The liberal feminism that drove the women’s movement in the 1970s needs to be re-examined in terms of postmodern feminist theories of oppression” (p. 1). Over time, feminism is continually redefined and can be elusive as society changes and evolves.

Postmodern feminists are skeptical of women’s consciousness as a uniform ideal and instead “encourage a commitment to plurality and the play of difference, unhampered by any predetermined gender identity or authoritarian impulses of the will to truth” (Hawkesworth, 2006, p. 56). The promise for women’s liberation and tolerance for multiple (often conflicting) realities can be seen as promoting relativism and thus lacking a solution to mobilize and enact real social change. Additionally, feminist scholars have varying views and critiques of the definition of power as it is used in the framework. The main criticism of Foucault’s definition of power is that it is in opposition to the traditionally seen behaviors within the Western societies where the power structure benefits men. The evidence can be seen most easily in the physical differences between men and women. Critics emphasize that women who adopt competitive and aggressive behaviors in an effort to gain power do not succeed as easily as men; therefore, a correlation between power and gender is evidenced (Lakoff, 1975).

Likewise, many criticisms of social constructionism make contentions regarding the exercise of power. Social constructionism allows an individual to construct and understand their own truth with the acceptance that there is an objective reality (Galbin, 2014). The perception of critics, however, is that whoever is most successful at conveying their social reality will ultimately gain the most power. Critics also believe that social constructionism is an excusable

way to avoid having to make a case for one's position. In other words, social constructionism permits one to create their own meaning, thus lessening the accountability for defining what is known reality versus what an individual's reality is (Craib, 1997).

The possible selves theory faces similar scrutiny as social constructionism, as it also provides a way for individuals to define who they are and who they would like to be. The conceptual representation of the self is constructed through one's own meaning-making process. As one might suspect based on their own experiences, there tends to be a gap between the potential and actual self that must be negated. Often the gap between who someone is and who they desire to be cannot be closed without resources, interventions, etc. Thus, mobility is limited, and the impact from self-efficacy and outcome expectancy is limited as well (Villanueva, 1993).

The expressed conflicts, concerns, and assumptions regarding the framework are essential to consider. As no theory exists without critics or limitations, it is the responsibility of the researcher not only to carefully consider the claims but also to address them with transparency. Therefore, I will emphasize how these frameworks can be used to better understand the glass ceiling.

Implications for Understanding and Analyzing the Glass Ceiling

This compilation of complex and diverse theories is essential in bringing to light research related to the concept of the glass ceiling. Feminist theory provides a systematic connection to the constructs of the entire framework, which is indispensable in contributing to the complex sets of research that currently exist. Feminist theory offers the desired context to understand the gendered acceptance of the construct of power, especially as it relates to advancement in the modern-day corporate arena. As noted by Kivunja (2018), theory provides a unique way to

analyze common experiences in order to develop actionable methods to change the present conditions. As such, this connection will allow the research to unify a complex web of meaning.

Feminist theory enables us to reflect upon the power imbalance between men and women. The experience of oppression is the result of a host of obstacles that prevent upward mobility; thus, it is essential to define and understand patterns in a connected way. As bell hooks (2000) and Bunch (1987) conclude, one must draw on the interpretation of the facts, a process that both uses and produces knowledge when using feminism as a framework for research. Postmodern feminism allows for the questioning of grand narratives as a way to understand power structures in the workplace. This will, in turn, illuminate any possible biases that have been created around gender-power relations. As such, the coexistence of gender and power will be studied to better understand the roles they have in oppression and how oppression correlates with access to or denial from advancement opportunities.

Social constructionism theory will reveal the ways in which both individuals and the workplace partake in the construction of their perceived reality of power as it relates to gender. Social constructionism also provides avenues for deconstructing how dominant groups align on specific topics. To further expand on this, the possible selves theory will provide a background for understanding how future orientation influences behavior. Figure 1 represents how the theoretical framework ties together distinctive viewpoints to uniquely analyze the research question.

Figure 1

Holistic Application of Theory to the Research

Feminism is the overarching theory this study utilizes to examine potential causes and consequences of oppression in an effort to emphasize (and act on) strategies of awareness.

	Post Modern Feminism	Social Constructionism	Possible Selves
What? Understand if bias exists in leadership advancement	Examining the relationship between gender and the self-reported desire for agency (power)	Understanding the cultural composition of gender and power relations in the workplace	Understanding one's beliefs that they are qualified to become leaders
How? Using the interpersonal circumplex...	...To compare the similarities of perceived dominance/power of current male leaders and women who have been denied promotions but feel qualified to lead and determine if there is statistical significance.		
Why? To understand if...	...The culture has created power-based personas for leaders based on gender		

Chapter 2: Review of the Literature

Within the past several decades, laws and regulations have been put in place to ensure that women are not discriminated against in the workplace. As a result of neglecting to address the root causes and perceptions that hold the glass ceiling in place (Barreto et al., 2009), women can be either promoted or denied the opportunity of advancement regardless of job qualifications. This study investigated women's opportunities for promotion as they relate to agency and communion in the male-dominated truck manufacturing industry. In addition, the study sought to illuminate potential biases of the modern-day glass ceiling by developing a deeper understanding of socially constructed workplace cultural definitions of gender and power. While a great deal of research has been done on the topic of breaking the glass ceiling, in order to advance the destruction of barriers that oppress women in the workplace, further research is necessary.

Broad Historical Context of the Glass Ceiling and Evolving Metaphors

The term "glass ceiling" was coined in 1978 by Marilyn Loden, a 31-year-old mid-level HR executive in the telecom industry, during a panel discussion on women's aspirations (Vargas, 2018). In the absence of her company's only female VP, Loden was asked to be a panelist during a Women's Exposition in New York, which was sponsored by the Women's Action Alliance (WAA). While other panelists framed women's advancement issues as a result of their own behaviors, Loden took an opposing stance, calling out the glass ceiling as the limiting factor for the upward mobility of women (Vargas, 2018). Nearly a decade later, Hymowitz and Schellhardt (1986) authored an article in *The Wall Street Journal* titled, "The Glass Ceiling: Why Women Can't Seem to Break the Invisible Barrier That Blocks Them from the Top Job." The article illustrated the often unacknowledged barriers that prevent women, despite their qualifications

over and beyond their male counterparts, from achieving success in the corporate world. The metaphor gradually caught the attention of the public, including industry leaders, government officials, and journalists. Expanded to include minorities, the term glass ceiling became a way to question why corporate America was highly saturated with white men when women and men of other ethnicities were more than qualified to occupy these positions (Berg, 2009).

The Glass Ceiling Act of 1991, also known as Title II of the Civil Rights Act of 1991, was initiated by Senator Bob Dole and took center stage in American politics as the bipartisan Glass Ceiling Commission. The mission was to “conduct a study of opportunities for, and artificial barriers to, the advancement of minority men and all women into management and decision-making positions in Corporate America” (Federal Glass Ceiling Commission, 1995, p. 3). The data gathered to construct the report showed the glass ceiling factually existed.

According to the Federal Glass Ceiling Commission (1995),

97% of the senior managers of Fortune 1000 industrial and Fortune 500 service companies are white; 95 to 97% are men. In Fortune 2000 industrial and service companies, 5% of senior managers are women—and of that 5%, virtually all are white.

(p. iii-iv)

Data collected also supported the hypothesis that women and minorities in positions of authority are paid less than their male counterparts and that the glass ceiling was not temporary or incidental. Conclusions from the research yielded that corporate America was not representative of the American population (U.S. Department of Labor, 1995).

While the glass ceiling was often referred to as something only affecting women and minorities, it was evident that the glass ceiling affected the progress of society and deterred the limitless opportunities a diverse top echelon of leaders would be able to offer. Lynn Martin, the

Department of Labor's secretary in 1991, acknowledged her stance on the glass ceiling in the closing remarks of her annual report:

The glass ceiling, where it exists, hinders not only individuals, but society as a whole. It effectively cuts our pool of potential corporate leaders by eliminating over one-half of our population. It deprives our economy of new leaders, new sources of creativity the—would be pioneers of the business world. If our end game is to compete successfully in today's global market, then we have to unleash the full potential of the American work force. The time has come to tear down, to dismantle—the—Glass Ceiling. (U.S.

Department of Labor, 1991, p. 1)

Since the findings from the Glass Ceiling Act of 1991 were presented, three decades of additional research shows that the glass ceiling effect is still in place today due to the slow societal progression of gender equality (Sharma & Keefe, 2011; Watson, 2016; Wrigley, 2002).

Additional metaphors have been created to identify the varying facets of discrimination concerning women in the workplace. For example, the sticky floor phenomenon offers an alternate perspective in which women may be contributors to their own limitations (Shambaugh, 2012). The sticky floor represents psychological barriers that prevent women from progressing through the leadership ranks (Shambaugh, 2012). While the glass ceiling implies that women are unable to reach the top of the ladder, the sticky floor infers that women are less likely than their male counterparts to start climbing the ladder as a result of their own self-fulfilling negative biases of themselves. The term "sticky floor" was proposed by Catherine Berheide in 1992, when during an interview, Berheide suggested that "most women should be so lucky to have the glass ceiling as their problem. Many [women are] mired in. . . the sticky floor" (Laabs, 1993, p. 35). Sticky floors are thought to be created as a result of women's fear and self-doubt in their

capabilities to become successful (Shambaugh, 2012). Rebecca Shambaugh (2012), author of *It's not a Glass Ceiling, It's a Sticky Floor*, proposed multiple alternatives that hold women back. Namely, Shambaugh suggests that women's inability to consider their work as valuable and failure to ask for what they really want is a major deterrent to their personal achievement. While some metaphors, such as sticky floors, expand upon the concept of the glass ceiling, many feminists contend that the glass ceiling metaphor is outdated (Eagly & Carli, 2007). For example, the labyrinth is a metaphor that was created to show that oppression should be considered as a maze rather than a final roadblock.

The labyrinth challenges the glass ceiling as a single barrier, suggesting that the opposition women face throughout their career paths is vast and varied, not a singular stopping point (Eagly & Carli, 2007). *Through the Labyrinth: The Truth about How Women Become Leaders* exposed this controversial topic, in which the authors suggest that in today's workplace, a single barrier limiting women's upward mobility is non-existent (Eagly & Carli, 2007). The authors argue that for women, upward mobility is "a complex journey that entails challenges and offers goals worth striving for . . . Passage through a labyrinth is not simple or direct, but requires persistence, awareness of one's progress, and a careful analysis of the puzzles that lie ahead" (Eagly & Carli, 2007, p. x). Two issues noted in the text include the contradictory nature of the perception of women's assertiveness in the workplace and the number of hours required to be successful in many positions. Data gathered via polling revealed that "when people's ideas about leadership do not match their view of women, they evaluate women less favorably than men" (Eagly & Carli, 2007, p. 97). Additionally, Eagly and Carli (2007) state that "stereotypes block women's progress through the labyrinth in two ways: by fueling people's doubt about women's leadership abilities and by making women personally anxious about confirming these

doubts” (p. 95). Navigating through the labyrinth requires that women persist in their determination for “access to power and authority” (Eagerly & Carli, 2007, p. 8).

Many other metaphors have since been added to the repertoire of terms that denote inequality in the workplace, each having a specific and contributory meaning to the literature. For the purpose of this study, I have employed Oakley’s definition of the glass ceiling as a major corporate barrier that obstructs women’s advancement opportunities and upward mobility. The glass ceiling represents a compilation of obstructions, including gender bias, discrimination, and other limitations, which create an unethical disadvantage for women in the workplace (Oakley, 2000).

Synthesis of the Scholarly Trends, Findings, and Debates

An abundance of research has been conducted to understand why women in corporate America are not progressing at the same levels as their male counterparts (Ababkov et al., 2005; Blackburn et al., 2002; Sobczak, 2018; van Vianen & Fischer, 2002; Wrigley, 2002). Many of the contributions to the field focus on gender roles and expectations and the subtle limitations they create for women. Careers have traditionally been designated as either primarily for men or women based on socially constructed gender roles (Lakoff, 1975). For example, a career in nursing has been chiefly associated with women due to the caring and nurturing traits desired in healthcare. Likewise, a career in manufacturing has been stereotyped as a man’s career, indicating a prerequisite for one to be strong and tough to be successful in the industry (Lakoff, 1975). This finding aligns with data from the U.S. Census Bureau (2016), showing that although there has been a drastic increase of women working outside of the home since the 1970s, a much larger percentage of women continue to work part-time and stay home compared to men.

Ababkov et al. (2005) found that these outdated stereotypes continually influence both men's and women's decisions to either climb the corporate ladder or find work-life balance. The majority of men in their study also confessed that they are responsible for the family's finances and that they believe women should take responsibility for maintaining the home. Through such studies, theories have been developed to explain this lack of movement among women in the workforce. One theory in particular, the preference theory (proposed by Catherine Hakim), signifies that there are three types of women in regard to their desire to contribute to the workforce (Blackburn et al., 2002). The theory distinguishes between women who chase their careers, women who invest in their family, and women who choose a combination of the two. Blackburn et al. (2002) critique this theory, noting that such decisions are not always based on preference but are rather a result of the environment. Furthermore, women who choose to pursue their careers over their domestic duty of raising their families can be frowned upon and discriminated against in a way that limits them from reaching the same levels as men (Blackburn et al., 2002). This discrimination is due to the difficulty in changing long-held beliefs that all women have domestic and child-rearing duties in the home.

A well-regarded study completed by Wrigley (2002) sought to further investigate women's perceptions of the glass ceiling and identify factors that perpetuate concepts of the glass ceiling. Through interviews and focus groups with a sample of 27 women working in agencies and corporations in public relations, Wrigley defined a new theoretical concept. The concept, negotiated resignation, was used to describe how women come to their own definition of the glass ceiling. At the start of the interviews and focus groups, most participants denied that the glass ceiling existed. After talking through the questions and hearing others' experiences, all participants were able to give their own encounters with the glass ceiling (Wrigley, 2002). The

study's results provided five factors that supported women's perceptions: denial, gender socialization, historical precedence, corporate bitch status, and corporate culture. Many of the participants blamed themselves, stating that their lack of career advancement was their own fault and was not related to their gender. Other participants believed they were the only ones being held back due to the emphasis the media put on the success of other women. Both notions were formed from the first factor, which Wrigley named denial (2002).

The second factor, gender socialization, accentuated participants' acknowledgment of cultural differences among genders even though they saw these roles becoming more opportunistic over time. The third factor, historical precedence, aligned with the findings of Ababkov et al. (2005) and confirmed that women's expectations for themselves not only include career limitations but also attribute those limitations to the traditional view that women have a key role as caregivers (Wrigley, 2002). Historical precedence is intimately related to the possible selves theory, as it creates ties between women's self-perception of who they should be in society. The fourth factor, which is becoming increasingly popular in other studies, describes women in the workplace as road blockers, preventing their female colleagues from rising to the top. This factor has been called the queen bee effect and is described by participants in the study as the corporate bitch status (Wrigley, 2002). The term "queen bee" is not new, as it originated in 1973 by G. Staines, C. Tavis, and T. E. Jayaratne (Sobczak, 2018). The term "refers to women in high positions who have achieved their professional goals in organizations dominated by men by distancing themselves from other women and at the same time expressing behaviors that lead to their gender stereotyping" (Sobczak, 2018, p. 54). Lastly, corporate culture was noted as a reason for preventing women from rising to top-level management positions. From these factors, the study explicitly concluded that the glass ceiling certainly still exists (Wrigley, 2002).

A study by van Vianen and Fischer (2002) found that regardless of gender, a preference for masculine culture exists in the top levels of management—one that does not exist among other non-managerial areas. In other words, the study found that as women move upward in a company, their preferences and styles are more similar to those of men. The researchers studied the ambitions of 350 participants and their desires to move vertically in the organization. The findings conveyed that women were less motivated than their male counterparts. The study showed that women's responses reflected a conflict: women were more prone to decline high-profile management promotions due to their commitment to work-life balance. The study concluded that women have “weaker managerial ambitions than men” at all organizational levels (van Vianen & Fischer, 2002, p. 331). However, the study also revealed that women's ambitions have increased, as there has been a drastic increase in the percentage of female business owners, indicating that women may be more ambitious than van Vianen and Fisher alluded to in their study.

The 2016 Small Business Owner Report produced by GfK Public Affairs and Corporate Communications took an in-depth look at how women business owners viewed the glass ceiling. The study explained how women circumvent the glass ceiling by starting their own businesses. More than three-fourths (77%) of female business owners surveyed said that a glass ceiling does exist; however, only 56% of the men surveyed felt the same way. Only 10% of men felt they had been limited by the glass ceiling, while 46% of women felt they had experienced limitations. Interestingly, almost eight out of ten women business owners said they assumed they had the same access to clients and resources as their male counterparts, yet almost 30% did not believe they had the same access to capital.

Researchers who deviate their focus from typical themes, such as the intentional and deliberate limiting of women in leadership roles, are exploring a widely recognized phrase, “second-generation gender bias” (Ely, 2013, p. 63), to understand the small margin of women who hold senior positions. The second-generation gender bias is a set of norms and practices in the workplace that do not seem conspicuously delimiting but are, in fact, oppressive to women in social situations (Ely, 2013.). This powerful unconscious bias is formed through everyday gender-related perceptions that create invisible barriers for women, impeding their opportunities for advancement. What is genuinely shocking is that women can, and often do, perpetuate second-generation gender bias. The conversation has not yet made a shift to confront these realities, and the spotlight continues to focus on how male-dominated structures of power and influence oppress women. In their article, “Women Rising: The Unseen Barriers,” Ely (2013) summarizes their research:

The gender dynamics involved in becoming a leader, offer a theoretical rationale for teaching leadership in women-only groups, and suggest design and delivery principles to increase the likelihood that women’s leadership programs will help women advance into more senior leadership roles. (p. 66)

Such insights guide companies to reshape their trainings and efforts to prepare women to move into executive positions. However, it is difficult to quantify the effect these efforts have on positively impacting gender equality in leadership positions.

The timely topic of the glass ceiling has also been at the heart of politics. The 2016 presidential election spotlighted gender and hosted a wealth of derogatory dialogue concerning gender. When a woman won a major party’s nominee for the presidential election for the very first time in history, many felt a great stride for women in the political arena was made. After 44

consecutive men were elected to the U.S. presidential office, several questions surrounded when (if ever) a woman would finally be able to make the breakthrough into this exclusive, sacred male arena. “What an incredible honor that you have given me, and I can’t believe we just put the biggest crack in that glass ceiling yet” (Collinson & Lee, 2016, p. 4), Hillary Clinton announced after the votes came in to acknowledge the prestigious honor of being the first female presidential nominee. Although the long-awaited win came, it did not come without bigotry and criticism targeted at her gender.

Throughout the election, Donald Trump accused Hillary Clinton of lacking stamina and repeatedly referred to her as a “nasty woman,” implying she was disobeying the proper mannerisms and actions associated with being a woman. Reince Priebus, who was at the time of his remarks Republican Party Chairman, also made derogatory statements. He indicated that Hillary Clinton needed to smile more, another implicit reminder of the gender role expectations society has placed on women (Collinson & Lee, 2016). In the recent 2020 election, a record-setting seven women ran for President of the United States of America. Although the first female present was not elected, Vice President Kamala Harris took her place as the first woman in history to hold the title of Vice President. As the progression of female leaders continues to evolve, many conversations around the oppression of women give hope to those looking for change. Although subtle changes can be seen in many arenas, the manufacturing industry tends to lag behind.

Research on Female Leadership in Manufacturing

The definition of truck manufacturing will provide context for the specific industry this research will address. The companies that fall into this category “are often called original equipment manufacturers or ‘OEMs’ that primarily assemble entire motor vehicles including

cars, mini-vans, light trucks, sport utility vehicles (SUVs), electric automobiles for highway use, fire-trucks, tractors, and buses” (Thompson & Merchant, 2010, p. 10). The United States has a long history of manufacturing and assembly lines, and while many people still consider manufacturing a labor-intensive job, OEMs generally have a broad base of corporate positions that include but are not limited to training, marketing, human resources, engineering, logistics, and procurement.

Based on the 2016 Bureau of Labor Statistics, approximately 47% of the total U.S. labor force is represented by women, while only 29% (less than one-third) of the manufacturing industry is comprised of women. With only a few exceptions, such as textiles, apparel, and leather manufacturing, virtually every manufacturing sector in the U.S. has an underrepresentation of women. Congress commissioned the Joint Economic Committee to produce a report in May of 2013 titled “Women in Manufacturing.” The authors discuss the thinking of women who are already working in the manufacturing industry regarding their underrepresentation, stating that “there is agreement that the factor contributing most to women’s underrepresentation in manufacturing is the perception of a male-favored culture” (Women in Manufacturing, 2013, p. 5). As a direct result of the findings of this report, congress supported a proposal to increase the number of women in leadership roles in the manufacturing sector. According to the statistics noted in the report, approximately 30% of labor is made up of women, while the numbers drastically plummet the higher the position: women comprise 17% of the executive board, 12% of executive officers, and 6% of CEOs (Women in Manufacturing, 2013).

Deloitte’s consulting firm commissioned a study in 2017 with the assistance of the Manufacturing Institute and the Association of Supply Chain Management (APICS) to understand why manufacturing is failing to attract, retain, and promote women within the

industry. The basis for this research was that “women constitute one of US manufacturing’s largest pools of untapped talent” (Deloitte, 2017, p. 4). The survey done in collaboration with this study included responses from 600 professional women, most of whom held a career in the manufacturing industry. The results showed that approximately 75% of respondents believe women are underrepresented within their organization’s leadership roles. According to the respondents, the main reasons women feel they are underrepresented in the industry are as follows: 74% believe there is an industry bias in favor of men for leadership positions; 53% attribute underrepresentation to organizational cultural norms; 47% point to the lack of mentorship; and 46% believe it results from the overall perception of manufacturing. In addition, 67% of respondents indicate standards of performance are inconsistent between men and women in their industries, and over 75% indicated the standards are higher for women. Based on the survey results, respondents noted the inclusion of women on leadership teams “can help manufacturers deliver: 88% diverse perspectives in decision-making; 84% innovative and creative approaches and solutions; 84% balanced organizational management; 74 % improved financial performance” (Deloitte, 2017, p. 6).

In 2011, Clason and Turner examined the communicative constructions of manufacturing workplaces. Unsurprisingly, they found these environments were predominantly male, further noting that a woman’s presence in the environment was perceived as intrusive, while a man’s presence was perceived as normal. Twenty interviews were conducted with both men and women currently working in the manufacturing industry. Conclusions from the study indicated that women often experienced disconcerting dilemmas. Women expressed that they did not feel as though they were employees with potential but instead only recognized by their gender. This problem is further expounded on by the “visibility-invisibility [concept] which took the forms of

failure to recognize women in the workplace, excluding them, highlighting them as focused on family, or as trying, with varying success, to act like men” (Clason & Turner, 2011, p. 53). Some survey respondents noted that preferential treatment was given to women who reflected characteristics deemed as “masculine,” such as assertiveness and direct communication tactics. Ultimately, the culture of hegemonic masculinity caused women to feel uneasy and as though the environment was not welcoming.

There is no lack of research that incentivizes and proposes the value of having women in leadership. A recent publication, “The business case for women leaders: Meta-analysis, research critique, and path forward,” validates a positive correlation between the financial performance of a company and the number of women in key leadership roles (Hoobler et al., 2016). Soft findings showed that including women in formerly male-dominated teams and business areas resulted in increased performance and created an upsurge in innovation outputs, especially from product design (Hoobler et al., 2016). Positive repercussions were found to have an even higher correlation when the position of CEO was held by a woman (Hoobler et al., 2016). These discoveries are enhanced by research showing that if men and women were equal contributors to the economy, women could increase the global GDP by over one-fourth of the GDP today (or 28 trillion USD) by 2025 (Mckinsey and Co., 2015). A 26% increase annually is a substantial increase, especially considering that this is approximately the size of both the U.S. and Chinese economies combined (Mckinsey and Co., 2015). Despite what the research has revealed, there is still a major gender gap present in today’s manufacturing industry.

While the business case clearly supports the inclusion of women in manufacturing, studies continue to show that women leave the industry at an unprecedented rate. The meta-causes noted for women departing from this industry include

[a] lack of promotional opportunities, a lack of challenging, novel and interesting work assignments, poor relationships with leaders and co-workers and bias in the workplace.

Pay is also cited as a reason women leave manufacturing, and data from the U.S. Bureau of Labor Statistics confirms a salary discrepancy, as women in manufacturing earned only 75.8% as much as men in 2015. (Buse, 2016)

Other research compiled by Buse (2016) shows that a specific mindset is evident in women who maintain their careers in the male-dominated manufacturing industry. They note that women who embrace a meaningful and optimistic mentality will persevere. Women who are successful in navigating their careers in the male-dominated sectors of industry are found to have an immense network of support from upper management and colleagues as well as supportive networks outside of their professional lives. These women have learned to capitalize on opportunities to learn and refine their leadership skills. These findings correlate with the possible selves theory and provide an in-depth approach for discovering self-influence in the aforementioned environments.

Another study that uses a similar framework was conducted in 2017. This research was completed by Jacqueline Easter as a dissertation for Capella University's School of Business and Technology. She focused on the glass ceiling from the perspective of men, and her study qualitatively explored men's perceptions regarding the promotion of women in the truck manufacturing industry. The interview questions led to discussions on how gender role stereotyping by male managers in truck manufacturing could influence the glass ceiling. The findings were similar between the perceptions of both men and women, and "although the participants agreed that women face bias, sex role stereotyping, and inequality when attempting to ascend the leadership ladder, for various reasons men hesitate to take action against it"

(Easter, 2017, p. 1). Ultimately, the study concluded that individual's perceptions regarding the specific characteristics of an ideal leader influence their decision-making for advancement opportunities.

The work of Teagan Dowler (2016) provides an insider perspective on the dilemmas women encounter in the manufacturing industry. Dowler writes about the realities of being a woman working in a traditionally masculine industry. She writes to build awareness of the cultures existing in the industries and gender-specific challenges that exist today as well as to provide open and honest encounters. She discusses her own opinions about gender, intertwining in an abstract way her theoretical framework of social constructionism. Dowler challenges the definition of gender put forward in a male-dominated environment. She seeks to inspire women to challenge their perceptions of who they are:

Because during all of those times of uncertainty we can redefine who we want to be.

When we believe things are true and certain, there is nothing to challenge and hence, nothing to change. By not having clear answers we are in an exciting time where we can influence the future development towards answers and understanding. (Dowler, 2016, p. 27)

Dowler believes both social and cultural resistance can prevent us from considering our own redefining process because, as a society, we have not spent enough time questioning our values and engaging in conversations with those of differing values (Dowler, 2016). This is the premise of my own work. Ultimately, I want to quantitatively provide results that can aid companies in understanding constructions of power and gender and relate that to the formation of their employees' possible selves. Understanding that gender does not dictate power and that power is not stagnant but constantly shifting influences how possible selves can be seen.

Strengths, Weaknesses, Gaps, and Future Implications

A significant body of research over the past century has shown that for women, the glass ceiling is a reality that persists in many industries and organizations. The research I have reviewed on female leadership roles in manufacturing is limited. The research has provided insights on the male to female ratios in varying positions throughout the industry. It has also illuminated the reasons why women leave the manufacturing industry and potential ways to retain them. Lastly, interviewing and direct questioning techniques have been used to validate a male-favored culture in the industry. The research provides clear evidence that validates the lack of female representation in leadership roles.

Several qualitative studies reflect evidence that the women interviewed suggest reasons for the lack of female leadership and propose ways to effectively combat this overwhelming challenge to equal the playing field. In addition, meta-analyses of the glass ceiling have produced a variety of steps that men, women, and organizations can take in order to initiate change. While women's leadership and management styles have been well-researched, there is a major gap in the literature with regard to quantitatively validating the idea proposed in much of the research: that a masculine culture exists in the leadership arena of the manufacturing industry.

In order to better understand if this bias perpetuates the glass ceiling, more research must be conducted. The influence of gender-based power structures within this industry is of particular interest. Although feminist theory saturates many studies concerning the glass ceiling, I have not, thus far, discovered any published research that specifically uses social constructionism or the possible selves theory to explore the impacts of a woman's social and individual constructs in navigating career trajectory or perceptions of power. The lack of research in this area provides a

ripe opportunity to fill a void in academic research as well as a chance to educate manufacturing companies about the impact of women's underrepresentation in leadership roles.

Application of Theories to the Research Gap

There is a need to further explore the culture of the workplace and its potential impact on the upward mobility of employees by looking specifically at gender. According to Berdahl et al. (2018), "Workplace gender pressures make organizational culture change difficult" (p. 440). For many decades, it has been assumed by practitioners that women who adopt competitive and aggressive behaviors in an effort to gain power do not succeed as easily as men (Lakoff, 1975). According to Menzies (2018),

Leadership theory prescribes that for women to emerge as a leader, they must display the traits commonly associated with effective leadership, including assertiveness. However, when women behave assertively, they may suffer a whole other set of consequences that men don't typically experience. (para. 3)

The key goal of my research was to investigate whether this phenomenon exists in companies within the manufacturing industry.

As a woman in a male-dominated industry, I have a personal investment beyond my academic goal of contributing to the current research. The manufacturing industry is a challenging place for a woman to work, especially if she wants to climb the corporate ladder. At some point during her career, she may be forced to examine the culture and the structures that hold it in place. My intent was to weave theories of feminism, postmodern feminist definitions of power, social constructionism, and the possible selves theory into this research.

In the next chapter, I will discuss the methods put forward to further explore the impact of socially constructed biases on the perpetuation of the glass ceiling in the truck manufacturing

industry. I will discuss the research methods and provide an explanation for choosing these methods. Additionally, I will review my role as the researcher, the instrumentation used for assessing the research question, and the planned methodology.

Chapter 3: Methodology

Research Question

An examination of the slow advancement of women in truck manufacturing raises several questions. Many studies have suggested methods for advancing women in the workplace, such as mentorships, leadership training, and other professional development programs (Deloitte, 2017). However, little exploration has been done in order to better understand the impact of power and dominance on leadership and advancement opportunities for women in the workplace. Utilizing a self-reported assessment on agency to analyze gender differences can create a new awareness. This awareness allows for the exploration of unconscious power-gender bias, which can then be considered in the decision-making process of promoting women in leadership.

The feminist research I accessed through this research process has predominantly been associated with qualitative methods. Many feminist researchers seek to explore the experiences of participants at the deepest levels in an effort to reveal the true voices of their research subjects (Ramazanoglu & Holland, 2002). However, qualitative research poses certain challenges when trying to apply the findings, including limited sample sizes as well as the intensive and time-consuming nature of gathering and analyzing data. Qualitative studies typically prohibit the generalization of the results to the larger population; thus, quantitative methods provide an alternative. Babbie (2010) describes quantitative research as a way to “emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys . . . quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon” (p. 84).

The study was guided by the following primary research question: Is there a statistically significant gender difference in self-reported measures of agency in career upward mobility? Using an instrument developed by Kenneth Locke, the Circumplex Scales of Interpersonal

Values (CSIV), I focused on a specific segment of the manufacturing industry and the measurement of agency as it relates to upward mobility.

Role of the Researcher

As the researcher in this study, my role was to develop a research question and design the assessment and methodology in a way that answered the inquiry. I worked for Company A during the time I performed this research. However, my role as the researcher did not influence or compromise the results of this study because the survey was distributed by Human Resources (HR) to encourage company-wide participation. In addition, I was responsible for collecting, analyzing, and interpreting the data to draw conclusions. This study was granted exemption from the Institution Research Board (IRB) due to the administration of the study through survey techniques (see Appendix F). I connected with practitioners, companies, networks, and other organizations to assist in this journey.

I contacted the HR department of the top four market shareholders in the Class 8 truck manufacturing industry by email as well as through networking connections. I also asked the president of the Women in Trucking Association to send out an inquiry to all Class 8 original equipment manufacturers (OEMs), which she did (see Appendix E). Two companies replied they were unable to participate, while the other two had interest. Due to the COVID-19 pandemic, only one company followed through with participating.

In order to determine a valid assessment for this study, I first worked with the Center for Creative Leadership. The assessments suggested by their practitioners needed to be purchased and were very costly. They also did not provide an individual score for each participant, specifically for aggressiveness or desire for power. I continued in my journey to seek an assessment that both evaluated power and dominance and could be adapted and administered at a

low cost. After reading some of Kenneth Locke's work, I contacted him directly to discuss the potential use of his assessment, which he granted at no cost.

Once obtaining both an adapted instrument and Company A's approval for the study, I initiated a project with Company A's Information Technology (IT) organization to ensure the assessment could get through the firewall. After the success of administering the assessment and receiving the responses, I began the journey of analyzing the results. Each of these pieces is explained below in detail.

Research Design

Quantitative research has specific guidelines that must be followed to ensure the validity of the research design. A quantitative analysis is generally utilized in order to establish relationships between variables (Babbie, 2010). The goal of this research was to understand the relationship between agency and gender as it related to upward mobility. In order to ensure the quantitative study guidelines were met, Babbie (2010) proposed the following:

1. *The data is usually gathered using structured research instruments.* The data were gathered using the CSIV, which has "adequate internal and test-retest reliability, and convergent and discriminant validity with measures of interpersonal traits, interpersonal problems, and implicit interpersonal motives" (Locke, 2019, p. 1).
2. *The results are based on larger sample sizes that are representative of the population.*

I had planned to administer the assessments to two of the four largest market shareholders in the Class 8 manufacturing industry. Due to restrictions brought forth during the COVID-19 pandemic, the study was limited to only one company; however, the sample size represented the population of Company A.

3. *The research study can usually be replicated or repeated, given its high reliability.* The intent of this study was to create a design that could be used in corporate industries to assess gender bias in management promotion opportunities. Using the electronic pre-questionnaire (see Appendix C) and assessment as well as conventional analysis techniques to assess the findings allowed for a repeatable study.
4. *The researcher has a clearly defined research question to which objective answers are sought.* The research question was: Is there a statistically significant difference between (1) the self-reported agency of women who have applied for leadership positions, been denied the opportunity to advance, and feel qualified to be a leader *and* (2) the self-reported agency of men who are currently leaders.
5. *All aspects of the study are carefully designed before data is collected.* A series of in-depth analytics were performed to obtain the mean scores for agency for the two test groups. Following this series of analytics, the primary analytics method was a *t*-test to compare the means. Descriptive statistics were also utilized to compare the relationships between groups as a byproduct of the data.
6. *Data are in the form of numbers and statistics, often arranged in tables, charts, figures, or other non-textual forms.* Microsoft Excel was used to analyze the data and create visualizations of the data. Qlik Sense was also used to generate dynamic visualizations for the statistical findings of the data.
7. *The project can be used to generalize concepts more widely, predict future results, or investigate causal relationships.* Class 8 manufacturing corporations are looking for information to help understand why there is still a gap in female leadership. This study can

be used by Human Resource departments to investigate the leadership culture from a perspective of agentic values.

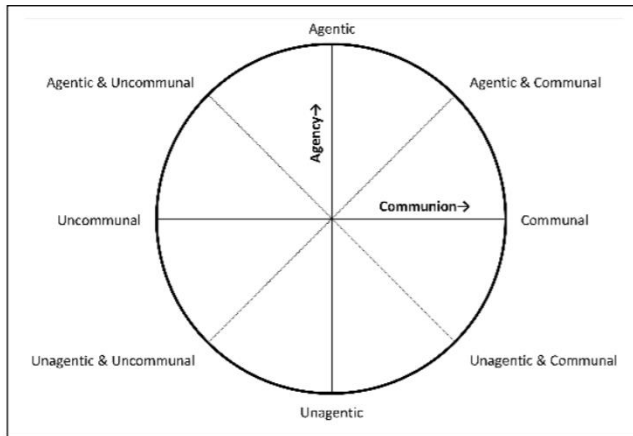
8. *The researcher uses tools, such as questionnaires or computer software, to collect numerical data.* The data for this study was collected in Qualtrics. According to Appalachian State University (2019), Qualtrics is a “research suite for an enterprise online survey software solution that empowers you to collect, analyze and act on relevant data.”

Instrument

In order to perform this study, I explored an assessment that clearly measured an individual’s attributes regarding power: the interpersonal circumplex. This assessment, which appears somewhat complex in nature, was designed as a Cartesian plane representing a two-dimensional visualization of one’s interpersonal needs (Horowitz, 2004). The interpersonal circumplex (see Figure 2) is an assessment model for conceptualizing interpersonal behaviors and motives. It is defined by two orthogonal axes (Wiggins, 1979). The dimensions are often referred to as agency and communion. The use of these nouns in this context is derived from the work of Bakan (1966), who identified agency and communion as the very nature of human existence. The dimensions represent a dichotomy of independence (agency) and connectedness (communion). Agency represents ideas of dominance, power, and status, whereas communion suggests association and approachability (Bakan, 1966). Among prior research, there is an existing consensus that interpersonal behaviors are critically dependent on the two dimensions of agency and communion (Wiggins et al., 1989).

Figure 2

Interpersonal Circumplex (Locke & Heller, 2017)



The CSIV is a 64-item assessment that asks participants to self-rate each question on a scale of 0 to 4 (0 being not important and 4 being extremely important). See Table 1 for example questions from each octant. Dr. Kenneth Locke, the creator of the assessment, provided his approval to utilize the 64-item questionnaire in this research (see Appendix A) and advised that I modify the instructions to refer specifically to the workplace. An example question from the assessment (see Appendix B for the full list of questions), based on a 5-point Likert scale (0 being the least important and 4 being the most important), is as follows: “When I am with my [co-workers], it is . . . 0 1 2 3 4 . . . that I put their needs before mine” (Locke, 2000). While the CSIV has been used primarily in the field of psychology, there is great value in understanding personal behavior preferences in the business environment to holistically interpret the collective view of agency as a reflection of leadership advancement.

The specified properties that allowed for quantifiable and repeatable mapping were a key advantage of using the circumplex for this study. The circumplex allowed the differences among variables to be reduced to two dimensions where each variable has a shared variance (Wiggins, 1979). In addition, the distribution of variables around the circle is uniform and equidistant.

While there are multiple assessments available to evaluate these attributes, the CSIV “assesses the full range of traits (in this case, values) associated with differing levels of agency and communion, but its multiple scales can be summarized as a single point in the circumplex space” (Locke, 2000, p. 263).

Table 1

Examples of Items From Each Octant of the CSIV

Octant	Example CSIV Item
Communal	I feel connected to my co-workers
Agentic and Communal	My co-workers respect what I have to say
Agentic	I appear confident
Agentic and Uncommunal	I keep the upper hand
Uncommunal	My co-workers not know what I am thinking or feeling
Unagentic and Uncommunal	I not say something stupid
Unagentic	I not make my co-workers angry
Unagentic and Communal	My co-workers approve of me

Procedures

The 64 items in the CSIV can be reduced to represent the eight scales within the circumplex octant that have demonstrated adequate psychometric properties (Locke, 2000). Because the octant scales of the CSIV conform to a circumplex, the two vectors of agency and communication can be calculated. The respondent’s scores were calculated as individual agency motive scores using formulas for reliabilities of weighted sums (Markey & Markey, 2009). The agentic score indicated the relative importance respondents place on being confident and assertive versus meek and submissive. To define the methodology in more detail, once the assessments were complete, I followed three steps to calculate the agentic value for each participant. In Step 1, I computed the raw vector scores for each participant. Using the responses (0-4) for each of the 64 questions, the score was calculated for each vector. The calculation can be found in Table 2 below. In Step 2, I calculated the cardinal unipolar vectors using weighted

vector sums; this calculation can be found in Table 3 below. Lastly, I calculated the traditional unipolar vectors to give an individual agentic score for each participant (see Table 4).

Table 2

Computing Raw Vector Sums (Locke, 2019)

Vector	Calculation
Agentic (PA)	$(v01+v09+v17+v25+v33+v41+v49+v57)/8$
Agenetic, Uncommunal (BC)	$(v04+v12+v20+v28+v36+v44+v52+v60)/8$
Uncommunal (DE)	$(v07+v15+v23+v31+v39+v47+v55+v63)/8$
Unagentic, Uncommunal (FG)	$(v02+v10+v18+v26+v34+v42+v50+v58)/8$
Unagentic (HI)	$(v05+v13+v21+v29+v37+v45+v53+v61)/8$
Unagentic, Communal (JK)	$(v08+v16+v24+v32+v40+v48+v56+v64)/8$
Communal (LM)	$(v03+v11+v19+v27+v35+v43+v51+v59)/8$
Agentic, Communal (NO)	$(v06+v14+v22+v30+v38+v46+v54+v62)/8$

Table 3

Computing Cardinal Unipolar Vectors (Locke, 2019)

Vector	Calculation
Raw Communal	$.414*(LM + (.707 * (JK+NO)))$
Raw Agentic	$.414*(PA + (.707 * (BC+NO)))$
Raw Unagentic	$.414*(HI + (.707 * (JK+FG)))$
Raw Uncommunal	$.414*(DE + (.707 * (BC+FG)))$

Table 4

Computing Traditional Unipolar Vectors (Locke, 2019)

Vector	Calculation
Communal	Raw Communal – Raw Uncommunal
Agentic	Raw Agentic – Raw Unagentic

Once these scores were calculated, the participants were divided into 2 groups based on their responses to the demographic questionnaire (see Appendix D). The circular mean for Groups 1 and 2 (as defined below) was calculated by applying circular statistics (Upton & Fingleton, 1989). The circular mean and standard deviation for each group was calculated and then compared using the *t*-test.

Group Number 1: Participants who answered the pre-questions with the following responses:

(a) Gender = Female.

(b) Have you applied to a director-level position or higher and been accepted into the role? = I have applied for a director role or higher but have not been accepted into the role.

(c) How capable do you feel you are of being promoted within the company into a leadership role? = I feel that I could be promoted into leadership today.

Group Number 2: Participants who answered the pre-questions with the following response:

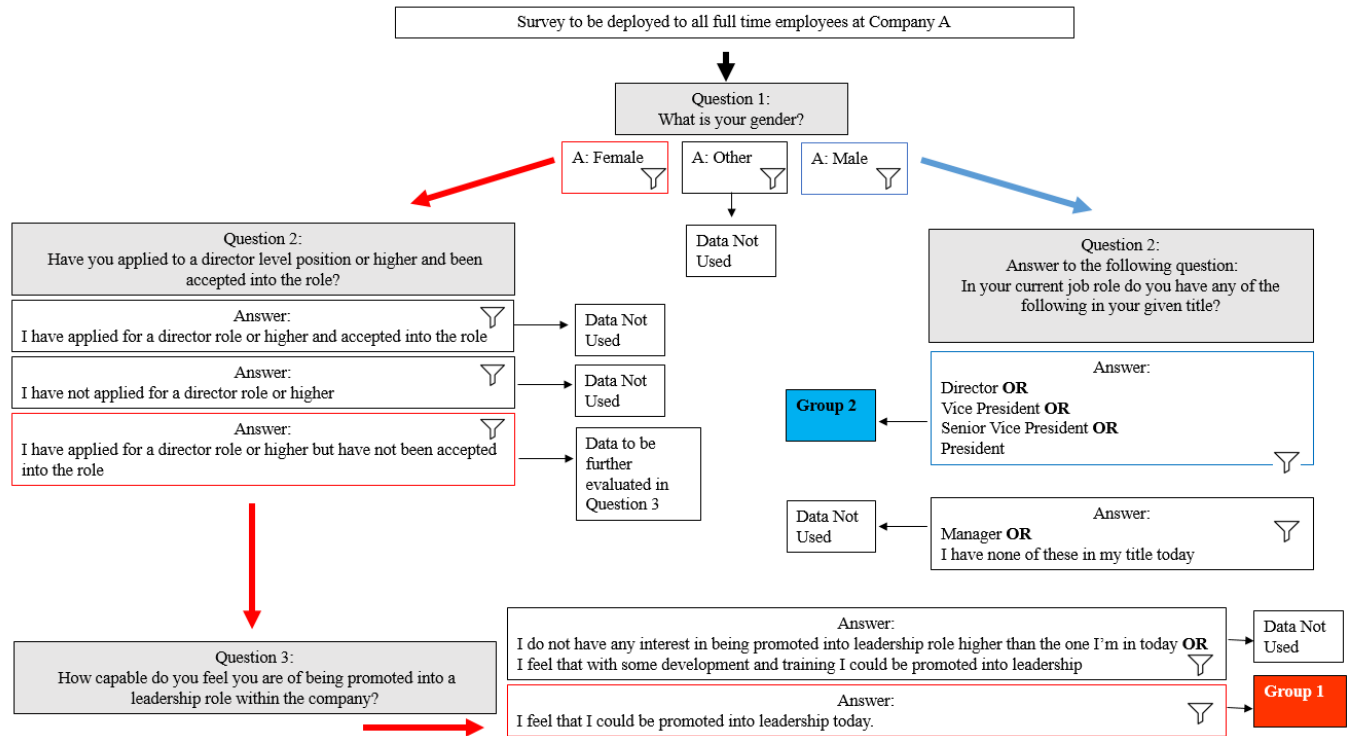
(a) Gender = Male

(b) In your current job, do you have director, vice president, senior vice president, or president in your title? = Yes.

Any results which were not part of Groups 1 or 2 were not used to assess this hypothesis (see Figure 3).

Figure 3

Research Participant Grouping



Group 1 signified women who applied for director-level or high-level positions and felt capable of leading but were denied an advancement opportunity. Group 2 represented men who were in director-level positions or higher. The mean agentic scores from Groups 1 and 2 were compared using conventional analysis techniques for comparing differences among groups, also known as *t*-testing. The mean agentic score for Group 1 will be referenced as μ_1 . The mean agentic score for Group 2 will be referenced as μ_2 . My hypothesis was as follows: $H_0: \mu_1 = \mu_2$; $H_a: \mu_1 \neq \mu_2$. The research question asked, is there a statistically significant difference between the mean agency scores of Group 1 and Group 2?

Prior to administering the full questionnaire to the broader group of participants, I administered a pilot study with approximately 15 participants. The results of the pilot were used to ensure the usability of the test instrument, collection, and storage of data and analysis

methods. The assessment was given to 15 participants who were not employed at either of the companies that initially offered to participate in this research but who work in various industries. The pilot study assisted in confirming the correct logistical administration of the assessment, including accessibility, response collection time, etc. The information derived from the pilot study was used to make necessary adjustments to the delivery and collection of the data for the official launch of the research.

Participants and Sampling

Company A and Company B represent two of the four largest market shareholders of the Class 8 truck equipment manufacturers industry in the U.S. Both manufacturers pledged their commitment to increasing the number of women in leadership. According to Company B's website:

We have committed ourselves to raising the proportion of women in senior management at the Group to at least 20% by the year 2020. The proportion of women in such positions has continually risen in recent years to reach 18.8% at the end of 2018 (2017: 17.6%). Our instruments for supporting the targeted promotion of women include mentoring, special events and training courses, and employee networks. (Daimler, 2018, p. 113)

Similarly, Company A expressed:

Increasing female representation is a core component of [Company A's] Talent Strategy. We offer flexible work options, competitive pay and benefits (including paid maternity leave). We also provide training and developmental opportunities specifically for our female employees. Two of our flagship offerings are Women in Leadership (9-month program) and Elevate (12-month program) which highlight effective leadership skills for female employees. (Women in Trucking, 2019)

Both Company A and Company B were chosen for this study because of their large representation of the industry and because of their similar initiatives to increase the presence of women in leadership. Unfortunately, Company B was unable to participate in the study; thus, the study was performed with Company A. The CSIV assessment was administered at the same time as the pre-questions via email to all full-time, currently employed, white-collar employees in the headquarter office of Company A (2,589 employees). The email addresses were provided by the Human Resource department.

The emails from Company A were loaded into Qualtrics using an anonymous setting, which managed the email list to determine whether or not a response had been received but did not make that information available to the researcher. The demographic questionnaire and the assessment were loaded on the Appalachian State Qualtrics server, and results were compiled on a secure server. The data (449 responses) were downloaded and analyzed on a securely networked laptop with work products and results stored on the hard drive. All data and work products will be erased within 3 months after the publication of the results. To obtain the data, an email (see Appendix D) was sent to participants directly from Qualtrics with both the demographic questions as well as the CSIV assessment. The participants were sent reminders directly from Qualtrics 2 and 4 weeks after the initial email, giving them a total of 6 weeks to complete the assessment.

Validity and Limitations

The CSIV assessment was used in a similar study conducted by Locke and Heller (2017), which applied the interpersonal circumplex in addition to a supplemental assessment to look at whether or not “communal interpersonal motives predict preferences for interpersonal status versus power in a workplace setting” (p. 73). Locke and Heller reported findings that “communal

motives may mediate gender differences in preferences for status” (p. 74). The CSIV has been validated and has proven “adequate internal and test-retest reliability, and convergent and discriminant validity with measures of interpersonal traits, interpersonal problems, and implicit interpersonal motives” (Locke, 2019, p. 1). The self-reporting element of this instrument may have presented some limitations due to the impact of personal subjective biases. However, some research has indicated that when self-reports of interpersonal problems converge with peer reports, peer ratings provide an alternative point of view that may explain unique variations in some outcomes (Clifton et al., 2005).

This unique quantitative method of exploring agency in the Class 8 manufacturing industry revealed several interesting findings, many of which were not in the original scope of the analysis. Assigning the unique scores for each participant based on their self-reported agency and communion and then combining the responses with the initial demographic questionnaire provided a rich understanding. The subsequent chapter will explain the results and findings in detail and consider future implications for this study.

Chapter 4: Results

Introduction

At the key moment I planned to distribute the research survey, the COVID-19 crisis began. While this did not completely derail the study, several changes needed to be made. First, Company A agreed to administer the study with a short delay but with the design of the study unchanged. Company B, however, required additional time to prioritize engagement activities with their employees during the pandemic. Company B ultimately decided to completely opt out of the study, noting that the environment and the employees' morale may create trust issues, and they did not feel it was an appropriate time to engage employees in such a study.

Instead of serving as an analysis of the industry, the study was narrowed to assess a singular organization within the industry. Although the sampling changed, the research question remained the same. Using quantitative methods, the primary question for this study asked: Is there a statistically significant gender difference in self-reported measures of agency in career upward mobility as measured by the CSIV? More specifically, the research question was defined in two parts: Is there a statistically significant difference between (1) the self-reported agency of women who have applied for leadership positions, have been denied the opportunity to advance, and feel qualified to be a leader *and* (2) the self-reported agency of men who are currently leaders?

The study was sent to all full-time white-collar employees at the North American headquarters of Company A. Qualtrics was used to house the final email distribution, which consisted of 2,589 employees. The email was sent by a company HR leader (see Appendix D). Two reminders were also sent, and the survey was officially closed approximately 6 weeks following the initial email. Since the data could not be obtained from the originally proposed population, a calculation was performed to determine the sample size based on the updated

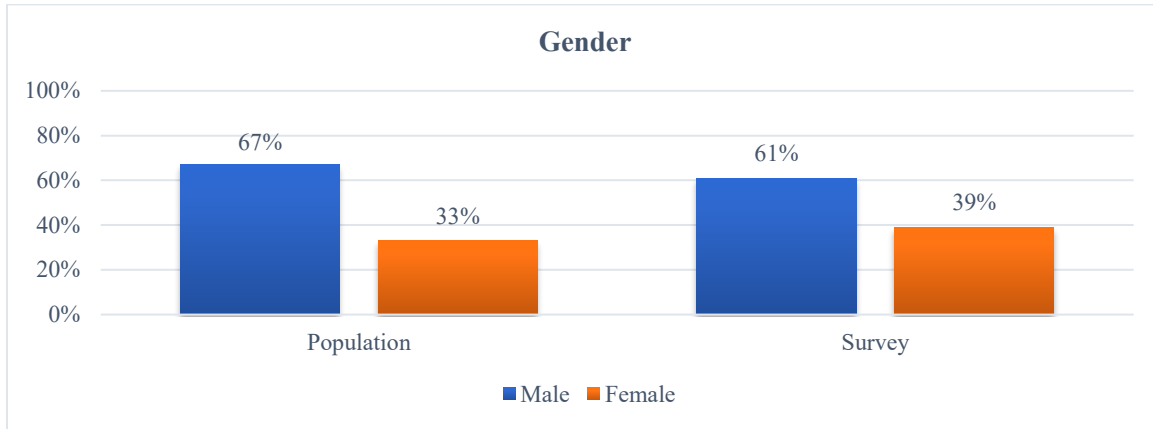
targeted respondents. With a confidence level of 95% (a z-score of 1.96), a margin of error of 5%, and a confidence interval of 5 (0.5 standard deviation), the needed sample size for this study was calculated using following formula: $n = N * X / (X + N - 1)$, where $X = Z_{\alpha/2}^2 * p * (1 - p) / MOE^2$ (Dattalo, 2008; Freund & Wilson, 2003). Based on this formula, the ideal sample size to represent the organization was 336 participants.

Participants

From the 2,589 potential respondents, 504 assessments were collected, generating an 18% response rate to the survey. Fifty-five of those responses were deemed unusable because the respondents elected not to complete essential identifying and demographic questions. The 55 responses were completely removed from the study. The removal of these responses yielded a total of 449 responses, which were used to analyze the results of the survey and represented approximately 17% of Company A's North American headquarter location. The study yielded 113 more results than needed for an ideal sample size at the 95% confidence level (Dattalo, 2008; Freund & Wilson, 2003). In addition, two respondents identified as "other" in regard to their gender. Their data were not used for analyzing gender specifically; however, it was used to evaluate the population as a whole. Figures 4–8 provide a breakdown of the gender data, age data, and position titles.

Figure 4

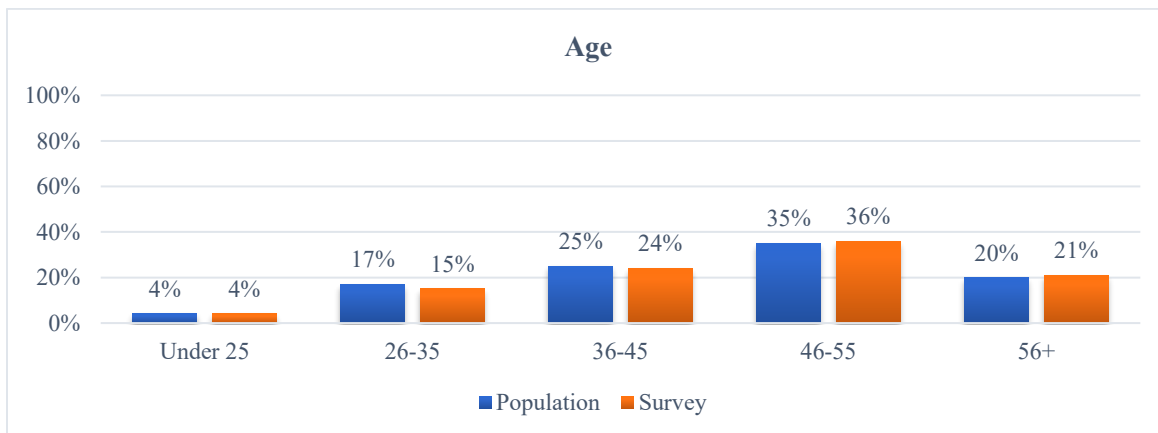
Gender Data for Population and Survey



The survey responses yielded a slightly higher (6%) response from women compared to the overall population; however, the results were generally representative of the population.

Figure 5

Age Data for Population and Survey



The age of the survey respondents reflected nearly an exact correlation to the age distribution of the general population based on the information provided by Human Resources. For any given age category, the largest discrepancy in the data was at most 2%. The 2% difference was in the

26–35 age range category. There was a 0% difference between survey participants and the general population under the age of 25, and all other categories showed a 1% difference.

Figure 6

Position Titles for the Population

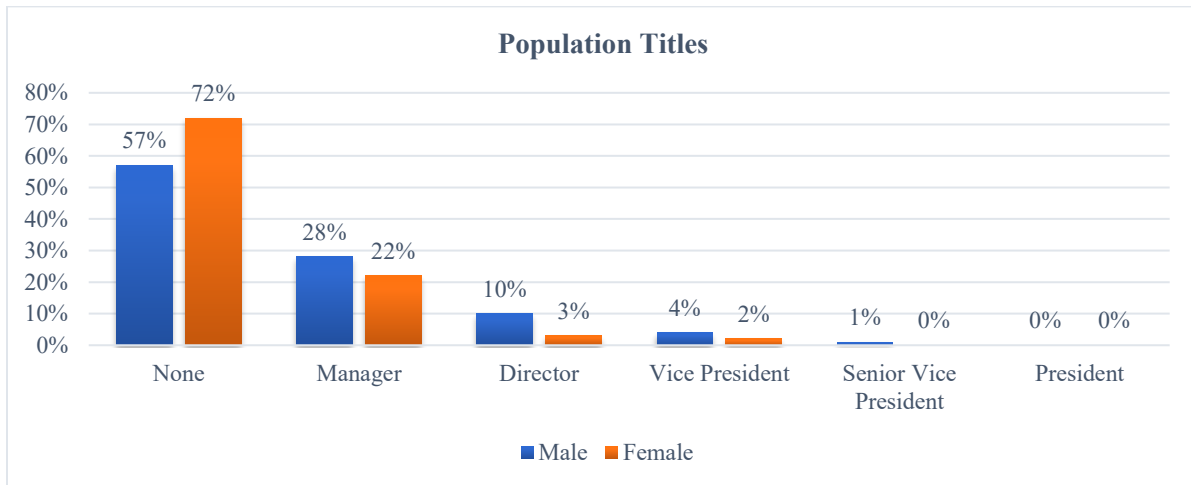


Figure 7

Position Titles for Men

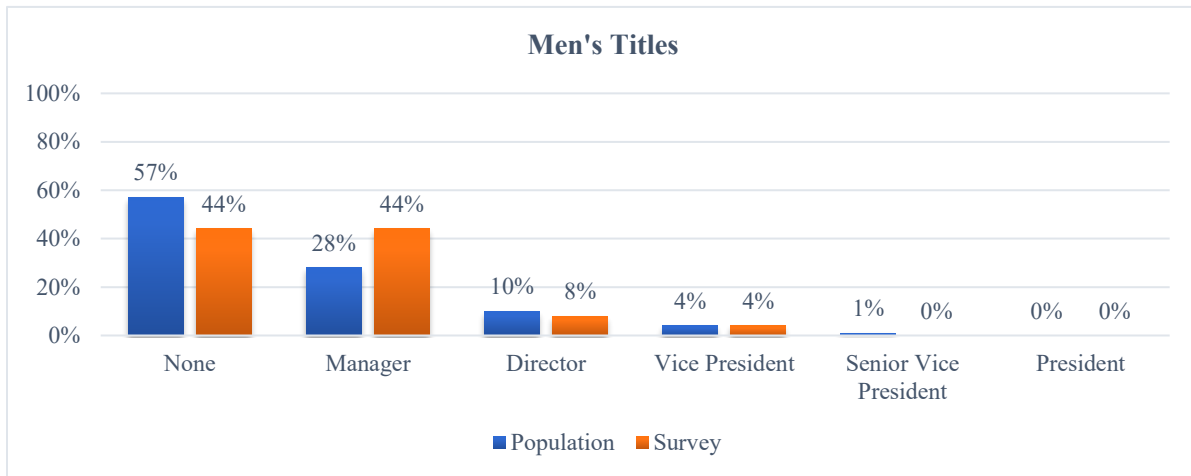
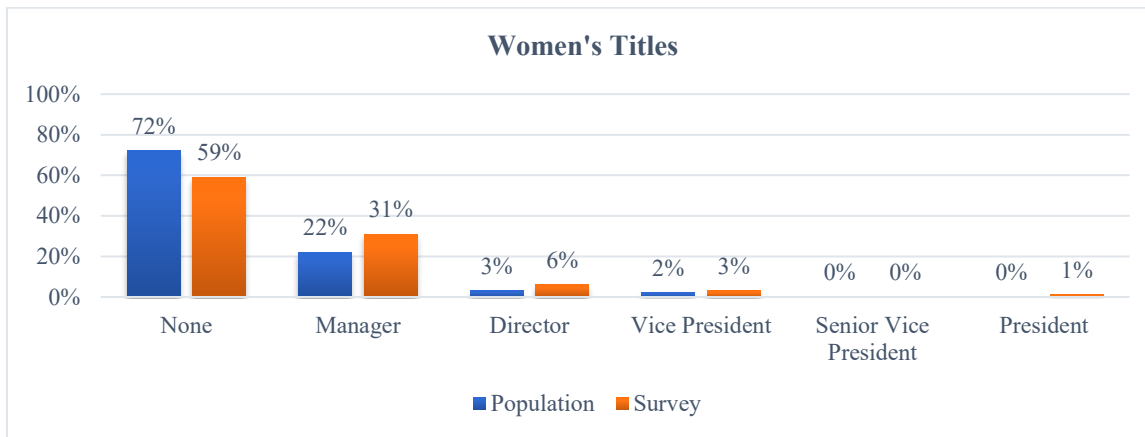


Figure 8

Position Titles for Women



There was a 15% difference in the total number of men and women working at the headquarters with “none” of the titles listed. The word “manager” was not found in the job title of 72% of women compared to 57% of men. Based on data from the headquarters, a disparity exists in female leadership in the current employee population, which was also represented in the sample. Overall, there was a proportionally higher number of employees who responded to the survey with the word “manager” in their title (as opposed to any other title). While those with the word “manager” in their title made up 28% of the total male population at the headquarters, 44% of the survey respondents came from this group. Likewise, the percentage of female managers is 22% at the headquarters but accounts for 31% of total female respondents.

There was a significant response rate from women at the headquarters with the word “director” in their title, as 10 out of the 27, or a total of 37%, provided feedback. It is also noteworthy that one woman from the survey identified as having the word “president” in her title; however, the headquarters data showed that there are no women with this title. It is possible that the respondent misinterpreted the question and may have had “senior vice president” or “vice president” in her title. The participant data were considered a valid representative of the

overall population. The subsequent findings are broken down into three parts: first, the initial CSIV calculations and the evaluation of the hypothesis; second, alternative groupings using the CSIV results; lastly, further exploration using questionnaire response data.

Findings: CSIV Calculations and Hypothesis Evaluation

For each participant, the eight vector sums were calculated using the methodology previously referenced in Table 2. Once completed, the four cardinal unipolar vectors were calculated using the formulas presented in Table 3. Finally, the two main vectors, agency and communion (the traditional unipolar vectors), were calculated for each of the participants. Once each participant was given an agency and communion score, a series of *t*-tests were performed to analyze statistical significance. To further investigate the data, the chi-square and ANOVA tests were used to evaluate additional interesting use cases. To assess the findings, the details of the eight vector sums were analyzed. The eight vectors in Table 5, their interpretation, and the norms for these vectors are referenced below. The normative sample used for comparison consisted of primarily young adult undergraduates (Locke, 2011). The company sample would differ from an age-matched sample of previous assessments; therefore, the results were not interpreted using these norms but were instead simply used as a reference for comparison.

Table 5*CSIV Eight Vector Sum Norms (Locke, 2011)*

Vector	Mean	SD	Vector Meaning	It is most important to me that
PA (+A)	2.53	0.63	Agentic	My coworkers acknowledge when I am right
BC (+A-C)	1.38	0.71	Agentic and Uncommunal	I keep the upper hand
DE (-C)	1.10	0.70	Uncommunal	My coworkers keep their distance from me
FG (-A-C)	1.66	0.78	Unagentic and Uncommunal	I not say something stupid
HI (-A)	1.77	0.75	Unagentic	I not make my coworkers angry
JK (-A+C)	2.67	0.71	Unagentic and Communal	My coworkers like me
LM (+C)	2.83	0.69	Communal	I feel connected to my coworkers
NO (+A+C)	2.93	0.57	Agentic and Communal	My coworkers respect what I have to say

Table 6 shows the descriptive statistics by vector for the entire sample of respondents. The highest score based on the mean of all respondents of the survey was “NO” (which is indicative of both agentic and communal) and, as an example, includes the desire for people to respect what they say. This aligns with the ranking of the assessment norms in Table 5, which also showed “NO” as the highest vector. The lowest score for the mean of the research respondents was “BC,” which is similar to keeping the upper hand. This varies slightly, as the norm shows “DE” as the lowest value (ranking 8th) and “BC” as the next lowest (ranking 7th). It is worth noting that the mode was much lower for “BC” than “DE;” however, both vectors were moderately skewed for the survey data. Overall, the vectors from this study aligned closely with the norms presented for this assessment (see Table 5).

Table 6*Survey Vectors Descriptive Statistics for all Respondents*

	<i>PA</i>	<i>FG</i>	<i>LM</i>	<i>BC</i>	<i>HI</i>	<i>NO</i>	<i>DE</i>	<i>JK</i>
Mean	2.052	1.498	2.401	0.909	1.865	2.783	0.957	2.242
Standard Error	0.025	0.031	0.028	0.027	0.029	0.026	0.026	0.030
Median	2.000	1.500	2.500	0.875	1.875	2.875	0.875	2.250
Mode	2.125	1.625	2.500	0.375	2.000	2.875	0.875	2.250
Standard Deviation	0.528	0.665	0.591	0.566	0.621	0.552	0.544	0.643
Sample Variance	0.278	0.442	0.350	0.320	0.385	0.305	0.296	0.413
Count	449	449	449	449	449	449	449	449

The descriptive statistics for the female respondents (see Table 7) and male respondents (see Table 8) can be found below. Both samples had the same results as the population, with “NO” as the highest-scoring vector and “BC” as the lowest-scoring vector. Both samples aligned with the vector findings of the overall respondents as well as the norm values for this assessment.

Table 7*Survey Vectors Descriptive Statistics for Female Respondents*

	<i>PA</i>	<i>FG</i>	<i>LM</i>	<i>BC</i>	<i>HI</i>	<i>NO</i>	<i>DE</i>	<i>JK</i>
Mean	2.106	1.552	2.365	0.919	1.910	2.817	0.942	2.252
Standard Error	0.039	0.050	0.048	0.042	0.049	0.041	0.041	0.049
Median	2.125	1.625	2.500	0.875	1.875	2.875	0.875	2.375
Mode	2.500	1.625	2.500	0.375	1.625	3.000	0.500	2.375
Standard Deviation	0.520	0.665	0.628	0.550	0.648	0.546	0.547	0.644
Sample Variance	0.271	0.442	0.394	0.303	0.420	0.298	0.299	0.415
Count	174	174	174	174	174	174	174	174

Table 8*Survey Vectors Descriptive Statistics for Male Respondents*

	<i>PA</i>	<i>FG</i>	<i>LM</i>	<i>BC</i>	<i>HI</i>	<i>NO</i>	<i>DE</i>	<i>JK</i>
Mean	2.019	1.471	2.423	0.907	1.841	2.764	0.969	2.236
Standard Error	0.032	0.040	0.034	0.035	0.036	0.034	0.033	0.039
Median	2.000	1.500	2.500	0.875	1.875	2.875	0.875	2.250
Mode	2.125	1.125	2.625	0.625	2.000	2.875	0.875	2.250
Standard Deviation	0.530	0.660	0.569	0.576	0.602	0.558	0.544	0.645
Sample Variance	0.281	0.436	0.324	0.332	0.362	0.311	0.296	0.416
Count	273	273	273	273	273	273	273	273

Norms were not provided for the four cardinal unipolar vectors and were not used for the comparison of this study. Thus, although they were calculated, they are not presented here. The next set of data shows the traditional unipolar vector norms (see Table 9), again only used for reference, not comparison.

Table 9*CSIV Traditional Unipolar Vector Norms*

Vector	Mean	SD
Agency	0.30	0.65
Communion	1.46	0.74

Table 10 shows the descriptive statistics by vector (agency and communion) for all survey respondents. The assessment norms for agency produced a mean of 0.30 with a standard deviation of 0.65. The norms for communion were 1.46 for the mean and 0.74 for the standard deviation. Based on the results of the study, the mean value of communion and the standard deviation were slightly below the norms. For agency, the mean value was approximately eight times smaller than the norm. Again, due to the normative assessment sample of primarily undergraduate students, these data were used only as a reference.

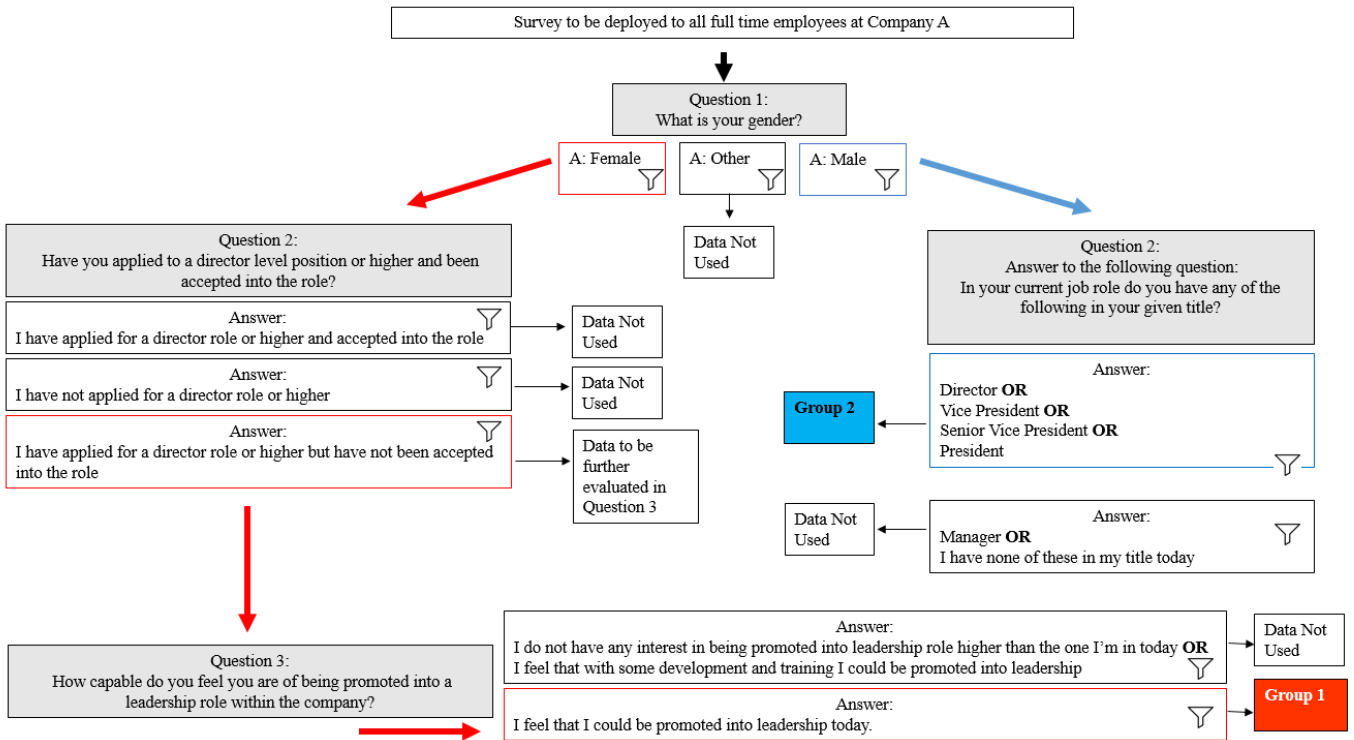
Table 10*Survey Unipolar Vectors Descriptive Statistics for all Respondents*

<i>Communion – All Respondents</i>		<i>Agency – All Respondents</i>	
Mean	1.364	Mean	0.063
Standard Error	0.027	Standard Error	0.024
Median	1.396	Median	0.088
Mode	1.984	Mode	0.155
Standard Deviation	0.564	Standard Deviation	0.500
Sample Variance	0.318	Sample Variance	0.250
Count	449	Count	449

Following the calculation of traditional unipolar vectors, the research question was evaluated. The initial research question created some complexity in the two groupings that were compared for statistical significance. The first group included women with self-reported agency who had applied for leadership positions and been denied the opportunity to advance but felt qualified to lead. The second group contained men with self-reported agency and who were currently leaders. The repost of Figure 3 below explains in more detail how the groups for the hypothesis were formed. The results of the initial research question are presented below. The mean agentic score for Group 1 will be referenced as μ_1 . The mean agentic score for Group 2 will be referenced as μ_2 . My hypothesis was as follows: $H_0: \mu_1 = \mu_2$; $H_a: \mu_1 \neq \mu_2$.

Figure 3

Research Participant Grouping



The first filter for Group 1 (“female”) narrowed the results to 174 respondents. Applying the second filter (the respondent “has applied for a director role or higher but not offered a promotion”) narrowed the respondents to 18. The last filter (the respondent feels they could be “promoted into leadership today”) left a final sample size of 14 for Group 1. The first filter for Group 2 (“male”) narrowed the results to 273 respondents. Applying the second filter (the respondents had “director, vice president, senior vice present, or president in their title”) led to 34 responses for Group 2. The mean value for agency (see Table 11) was calculated for both groups. Furthermore, the two-tailed *t*-test was performed to determine if the results were statistically significant. Given that the data were available for the communion value, the mean value was also calculated for communion (see Table 12) as well as the statistical significance.

The results, at a 95% confidence interval for both agency and communion, can be found in Table 13.

Table 11

Agency Descriptive Statistics for Group 1 and Group 2 Formed in the Hypothesis

<i>Agency</i>	<i>Group1</i>	<i>Agency</i>	<i>Group2</i>
Mean = μ_1	0.171	Mean = μ_2	0.201
Standard Error	0.152	Standard Error	0.086
Median	0.254	Median	0.189
Mode	#N/A	Mode	0.478
Standard Deviation	0.570	Standard Deviation	0.503
Sample Variance	0.325	Sample Variance	0.253
Count	14	Count	34

Table 12

Communion Descriptive Statistics for Group 1 and Group 2 Formed in the Hypothesis

<i>Communion</i>	<i>Group1</i>	<i>Communion</i>	<i>Group2</i>
Mean	1.613	Mean	1.535
Standard Error	0.169	Standard Error	0.077
Median	1.796	Median	1.538
Mode	#N/A	Mode	1.505
Standard Deviation	0.632	Standard Deviation	0.447
Sample Variance	0.399	Sample Variance	0.200
Count	14	Count	34

Table 13

P-Values for Group 1 and Group 2 Formed in the Hypothesis

Hypothesis	P-Value	Statistical Significance
Agency	0.861	No
Communion	0.628	No

Given the result $\mu_1 \neq \mu_2$, there are non-significance means, and therefore the null hypothesis must be accepted. The p-values calculated from the *t*-tests also indicated that not

enough factual evidence exists to suggest statistical significance among the two group's agency scores. The small group size may have impacted the power of this test and made it difficult to detect small effects. In addition, because the small group size (14 respondents) greatly reduces the power of this test, we should be extremely cautious about using this data to draw definitive conclusions about whether the agentic or communal motives of men who have advanced into leadership positions differ from those of women who sought but were denied advancement into such positions. Perhaps if the second company had participated, thus increasing the number of female responses, there would have been a more robust sample to analyze. The small sample size created further interest in exploring additional data collected even though it was not a part of the original hypothesis. Subsequently, other *t*-tests to find key discoveries in additional groupings were performed. Below are the additional two-tailed *t*-tests conducted and the findings.

Findings: CSIV Calculations and Alternative Groupings

Given the small group size of the initial hypothesis and the lack of statistical significance, the construction of new groups provided interesting data for additional evaluations of agency and communion. Table 14 shows five additional comparisons, with the column titled "Group A" indicating how the first group was formed and the column titled "Group B" showing how the second group was formed. Two *t*-tests were performed for each group (one for agency and one for communion), and the p-value is listed below, where $\alpha < .05$.

Table 14*Additional T-Tests and Results*

<i>Group A</i>	<i>Group B</i>	<i>P-Value Communion</i>	<i>Statistical Significance</i>	<i>P-Value Agency</i>	<i>Statistical Significance</i>
All Women	All Men	0.723	No	0.960	No
Men Director- Level or Higher	Women Director- Level or Higher	0.104	No	0.329	No
Women Director- Level or Higher	Women Below Director-Level	0.154	No	0.127	No
Men Director- Level or Higher	Men Below Director-Level	0.030	Yes	0.095	No
All Respondents Director-Level or Higher	All Respondents Below Director- Level	0.228	No	0.079	No

The only two-tailed *t*-test that showed significance was men with a “director” classification or higher in their titles compared to those who did not have at least the word “director” in their title when evaluating communion scores. Statistical significance was not present in the comparison agentic or communal values of men and women overall, nor at the general leadership level. No statistical significance among men and women was a particularly interesting finding. While there were no significant findings between men and women, the culture of the workplace seemed to imply that there was a significant difference between men

who are in leadership and those who were not. Men who did not have at least “director” in their title had an average score of 1.35 for communion, while those in leadership had an average score of 1.53 for communion. Thus, men in leadership at Company A scored on average 13% higher on the communion score (using a sample of 34 leaders and 239 non-leaders). An additional interesting finding resulted from exploring a differently framed hypothesis. For example, hypothesizing that men in higher-level positions had higher communion and agency scores (one-tailed), communion ($p < .015$), and agency ($p < .047$) would have shown significant differences.

Findings: Questionnaire Data

Additional noteworthy findings include that 43 out of 273 men (~16%) had applied to a director role or higher and had been offered the position, while only 15 out of 174 women (~9%) had been offered a director role or higher after applying. Of the women surveyed, 141 had never applied for a director role or higher (81%). Meanwhile, 183 out of 273 (67%) men surveyed had never applied for a director role or higher. Based on these findings, men were more likely to apply to leadership roles, and when they applied, were 50% more likely to get the promotion. Other findings showed that 145 out of 273 men (53%) indicated they felt as though they “could be promoted into leadership today,” whereas only 62 out of 174 women (36%) selected this response. Out of those 62 women, 52 responded that they had participated in trainings, workshops, or leadership programs sponsored by their company. For men who felt they “could be promoted into leadership today,” 122 out of the 145 had participated in trainings. Looking at both men and women who felt they “could be promoted into leadership today,” 41 out of 62 women (66%) had not applied for a promotion, while 71 out of 144 (49%) of men had not applied. In other words, looking at only those who felt confident they could lead, 17% more men

applied for a promotion than women. To summarize, Table 15 provides an overview of these results.

Table 15

Question and Response Matrix

<i>Question and Answer</i>	<i>Women</i>	<i>% Women</i>	<i>Men</i>	<i>% Men</i>	<i>Difference</i>
Have you applied to a director-level position or higher and been offered the role? I have applied for a director role or higher and offered the role	15	9%	43	16%	7% Higher for Men
Have you applied to a director-level position or higher and been offered the role? I have not applied for a director role or higher	141	81%	183	67%	14% Higher for Women
How capable do you feel you are of being promoted within the company into a leadership role? I feel that I could be promoted into leadership today*	62	36%	145	53%	17% Higher for Men
<i>*Of those answering yes to the question directly above (“I feel that I could be promoted into leadership today”): Have you participated in any trainings, workshops, or leadership programs sponsored by your company? Yes</i>	52 out of 62 52 out of 62	84% 84%	122 out of 145 122 out of 145	84% 84%	No difference No difference
<i>*Of those answering yes to the question above (“I feel that I could be promoted into leadership today”): Have you applied to a director role or higher and offered the role? I have not applied</i>	41 out of 62	66%	71 out of 144	49%	17% Higher for Women

To confirm the significance of these findings, a chi-square test was performed. A chi-square test compares the actual results of the questions to the expected outcomes. When looking at the question “Have you applied to a director-level position or higher and been offered the role?” and comparing the outcomes of men and women (see Table 16), the p-value was 0.006. This confirmed that men applying for director-level positions or higher are more likely to be promoted than women who apply for director-level positions.

Table 16

Have You Applied to a Director-Level Position or Higher and Been Offered the Role?

<i>Actual</i>	<i>Women</i>	<i>Men</i>	<i>Total</i>
Not Applied	141	183	324
Applied and Offered	15	43	58
Applied and Not Offered	18	46	64
Total	174	272	446

<i>Expected</i>	<i>Women</i>	<i>Men</i>	<i>Total</i>
Not Applied	126	198	324
Applied and Offered	23	35	58
Applied and Not Offered	25	39	64
Total	174	272	446

A chi-square test was also performed on the data for the question “How capable do you feel you are of being promoted within the company into a leadership role?” The p-value was 0.001 when the outcomes were compared (see Table 17). This result confirmed that men are more likely to “feel capable of being promoted into leadership today” than women. Furthermore, looking at the question “Have you applied to a director-level position or higher and been offered

the role?” but only using the sample of employees who replied “I feel that I could be promoted into leadership today,” resulted in a p-value of 0.057 (see Table 18 for the comparison used in the chi-square test). This finding indicated that out of employees who “feel they can be promoted into leadership today,” women are less likely to apply for a promotion than men.

Table 17

Have You Applied to a Director-Level Position or Higher and Been Offered the Role?

<i>Actual</i>	<i>Women</i>	<i>Men</i>	<i>Total</i>
Not Applied	7	33	40
Applied and Offered	14	40	54
Applied and Not Offered	41	71	112
Total	62	144	206

<i>Expected</i>	<i>Women</i>	<i>Men</i>	<i>Total</i>
Not Applied	12	28	40
Applied and Offered	16	38	54
Applied and Not Offered	34	78	112
Total	62	144	206

Table 18

How Capable do You Feel You are of Being Promoted Within the Company Into a Leadership Role?

<i>Actual</i>	<i>Women</i>	<i>Men</i>	<i>Total</i>
I do not have any interest in being promoted into a leadership role higher than the one I'm in today	29	45	74
I feel that I could be promoted into leadership today	62	145	207
I feel that with some development and training I could be promoted into leadership	81	83	164
Total	172	273	445
<i>Expected</i>	<i>Women</i>	<i>Men</i>	<i>Total</i>
I do not have any interest in being promoted into a leadership role higher than the one I'm in today	29	45	74
I feel that I could be promoted into leadership today	80	127	207
I feel that with some development and training I could be promoted into leadership	63	101	164
Total	172	273	445

In addition, it was reasonable to expect agentic and communal motives to be associated with seeking professional development and advancement opportunities as well as one's perception of their ability to lead. Thus, for the next steps, a series of one-way ANOVAs on communal and agentic values was performed. The five questions that were analyzed using ANOVA testing are listed in Table 19. There were no clear effects for "How many times have you applied for a promotion in the past 5 years?" nor for "How capable do you feel you are of being promoted within the company into a leadership role?" There were also no significant indicators when analyzing the question "How long have you been in your current role?" When looking at the question "Have you participated in any trainings, workshops, or leadership programs sponsored by your company?" (see Table 19), it was clear that stronger agentic motives predicted higher participation in professional development activities. In addition, "Have you applied to a director-level position or higher and been offered the role?" (see Table 19) showed that stronger communal motives predicted higher rates of being offered a position as a director or higher.

Table 19*Additional ANOVA Tests and Results*

<i>Test</i>	<i>Agency P-Value</i>	<i>Statistical Significance</i>	<i>Communion P-Value</i>	<i>Statistical Significance</i>
How many times have you applied for a promotion in the past 5 years?	0.103	No	0.359	No
Have you participated in any trainings, workshops, or leadership programs sponsored by your company?	0.018	Yes	0.082	No
Have you applied to a director-level position or higher and been offered the role?	0.078	No	0.013	Yes
How capable do you feel you are of being promoted within the company into a leadership role?	0.064	No	0.081	No
How long have you been in your current role?	0.877	No	0.805	No

An alternative for evaluating the variation between *how many times* an employee applied to a director role or higher was simply to evaluate whether or not they applied. The rewording of this question was important because there was less interest in the differentiation between *how many times* one has applied and more interest in whether they have applied or not. In order to evaluate this reframed query, an ANOVA test was run on the question “How many times have you applied for a promotion in the past 5 years?” The answers were coded as 0 (not applied) and

1 (regardless of how many times the employee applied). The results (see Table 21) of the ANOVA test then became significant, with stronger communitive motives predicting higher rates of applying to a director role or higher.

Table 20

Agency Results for “Have You Participated in any Trainings, Workshops, or Leadership Programs Sponsored by Your Company?”

Summary						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
0-None	83	-4.783	-0.058	0.358		
Yes, At Least One	157	7.495	0.048	0.229		
Yes, Several	209	25.740	0.124	0.217		

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>Df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	2.001	2	1.000	4.052	0.018	3.016
Within Groups	110.093	446	0.247			
Total	112.093	448				

Table 21

Communion Results for “Have You Applied to a Director-Level Position or Higher and Been Offered the Role?”

Summary					
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>	
Did not Apply	324	426.349	1.316	0.339	
Applied and Offered	59	87.578	1.484	0.221	
Applied and Not Offered	65	97.272	1.496	0.274	

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	2.746	2	1.373	4.367	0.013	3.016
Within Groups	139.887	445	0.314			
Total	142.633	447				

Table 22

Communion Results for “Have you Applied For a Promotion in the Past 5 Years?”

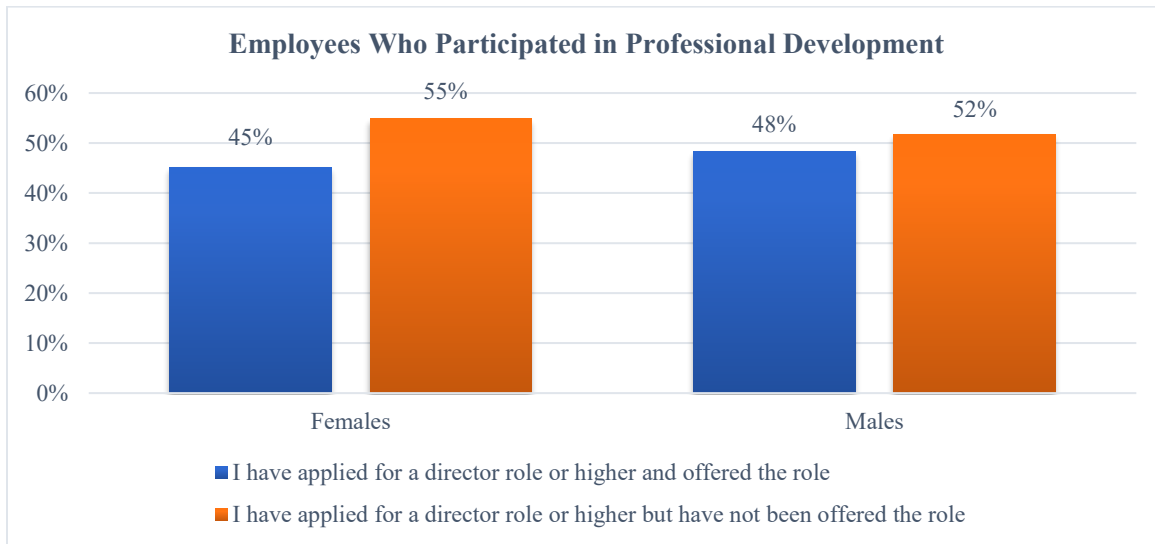
Summary						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
No	174	210.275	1.208	0.220		
Yes	275	23.404	0.085	0.201		

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	134.487	1	134.487	646.704	6.91E-89	3.862
Within Groups	92.957	447	0.208			
Total	227.444	448				

The conclusion of the ANOVA analyses was that stronger communal motives predicted both applying for and being offered a director position or higher. Thus, while motives may not have explained the gender differences, they appeared to have a significant impact on career paths. Data indicated that agency was a predictor of participation in trainings, while communion was a predictor of both applying for and being offered a leadership role. It was therefore important to review the percentage of employees who participated in trainings and were offered and accepted a promotion. Figure 9 shows a small difference for both men and women who participated in trainings and applied for a promotion. Just under half of the employees who applied for a promotion (regardless of gender) and participated in trainings were offered a promotion.

Figure 9

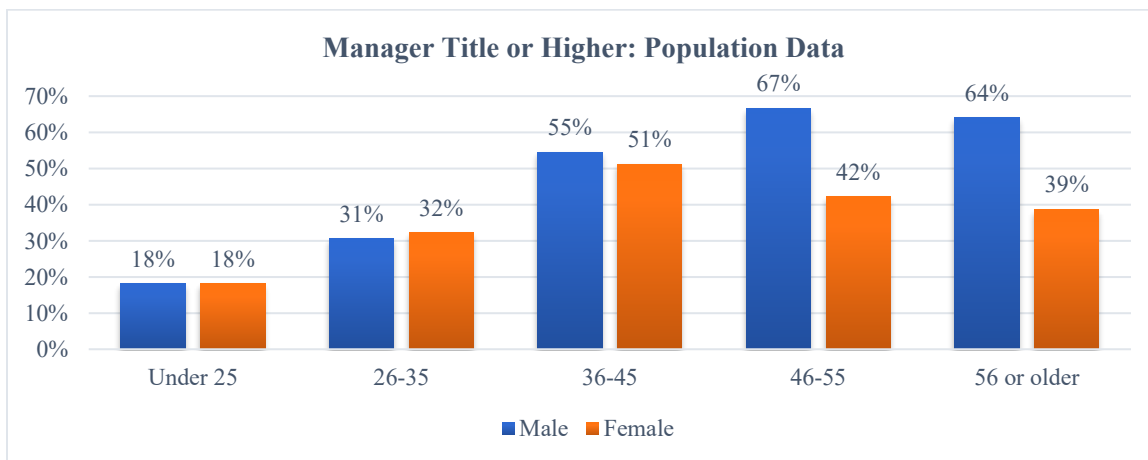
Employees Who Participated in Trainings and Professional Development



Finally, the data indicated that women in manager roles or higher were younger than men in those positions (see Figure 10). There were greater proportional gender differences in managerial roles in the two highest age groups (46 years old and up), but these differences were not present in the three lowest age groups (45 years old and younger).

Figure 10

Position Titles of Manager or Higher for Women and Men



Summary of Findings

The fundamental question of this research study investigated if there was a statistically significant difference between (1) the self-reported agency of women who applied for leadership positions, had been denied the opportunity to advance, and felt qualified to be a leader *and* (2) the self-reported agency of men who were currently in a leadership position. The study did not show statistically significant findings in regard to this question. As noted, the small sample size of Group 1 limited the study in its statistical power. However, the study brought forth intriguing avenues for future research. First and foremost, no significant difference was found in the agentic and communal motives between men and women despite typical tendencies for women to express more communal and less agentic motives than men do (Locke & Heller, 2017).

Contrary to the typical alpha male characteristics associated with high agency, such as assertiveness and aggression, the present study indicated that men in higher leadership roles had stronger preferences for communion-related behaviors. In other words, men in leadership (manager-level or higher) exhibited a higher preference for communion than men who were not in leadership, and the significance became even greater when looking at the director-level and higher. This aligned with the additional findings that a preference for communal motives correlated with promotion opportunities. As such, stronger communal motives predicted having applied for and also being offered a director position or higher. Seventeen percent more men than women responded that they “feel capable of leading today.” However, out of employees who “feel capable of leading today,” men were more likely to actually apply for a promotion than women, although for both genders, the numbers were surprising. Only 34% of women who felt capable of immediate leadership opportunities applied for a promotion, while 51% of men

applied. Men who applied to director-level positions or higher were more likely than women to receive the promotion.

In addition, for both men and women who participated in trainings, 84% felt that they were capable of being promoted today. However, out of those who participated in trainings, less than 50% of both men and women were granted a promotion when they applied. Those who participated in training and development activities were predicted by agentic motives. Lastly, the proportional gender differences in positions with “manager” or greater in their title decreased in the age groups of 45 and smaller. In other words, there was less of a disparity between the younger age brackets than between the older respondents of this study.

The next chapter will explore in further detail recommendations for these findings as well as how they tie into the overall framework of the literature. The goal of the next chapter is to create practical implications for the company to adopt in order to continue towards their efforts in creating a gender-inclusive environment. The company also aims to evaluate and understand the culture and identify any barriers that may inhibit the promotion of women. Thus, it is vital to indicate how this assessment can be practically re-applied to assess corporate progress.

Chapter 5: Discussion

Summary of Research Findings

The purpose of this study was to determine if there was a statistically significant gender difference in self-reported measures of agency in career upward mobility. In order to do this, the mean agency score of women who felt they could be promoted into leadership today but were denied a promotion opportunity when they applied (μ_1) was compared to the agency score of men who are currently in leadership (μ_2). The null hypothesis was that the two groups were equal $\mu_1 = \mu_2$, and therefore, a finding of non-significance resulted in accepting the null. However, because the small group size (14 respondents) greatly reduces the power of this test, we should be extremely cautious about using these data to draw conclusions one way or the other regarding whether the agentic or communal motives of men who have advanced into leadership positions differ from those of women who sought yet were denied advancement into such positions.

While the initial objective of the study was to evaluate agency, the data in both the pre-questionnaire as well as the calculated communion values presented opportunities for further analysis. Beyond evaluating the initial hypothesis, several other evaluations were completed using the available data. The key findings from this study are summarized, linked to previously referenced research and theories, and used to form recommendations for both the company and for future research. A summary of the statistically significant results (where the significance level is 0.05) are listed below:

Table 23*Summary of Statistically Significant Findings*

<i>Type of Test</i>	<i>Value Tested</i>	<i>Group 1</i>	<i>Group 2</i>	<i>P-Value</i>
T-Test	Mean Communion Value	Men Director-Level or Higher	Men Below Director-Level	0.030
Chi-Square	“Have you applied to a director-level position or higher and been offered the role?”	All Men	All Women	0.006
Chi-Square	“How capable do you feel you are of being promoted within the company into a leadership role?”	All Men	All Women	0.001
Chi-Square	“Have you applied to a director-level position or higher and been offered the role?”	Men who felt they could be promoted into leadership today	Women who felt they could be promoted into leadership today	0.057
ANOVA	Mean Agency Value	Have you participated in any trainings, workshops, or leadership programs sponsored by your company?		0.018
ANOVA	Mean Communion Value	Have you applied to a director-level position or higher and been offered the role?		0.013

*Note: P-Value is 0.05.

Initial findings indicated different self-reported motives exist between employees who attended trainings and those who were promoted. Both men and women who either signed up or, in some cases, were sought out for professional development opportunities with the company had high preferences for agency. A preference for agency is defined as demonstrating assertiveness, competitiveness, and independence (Bakan, 1966). On the other hand, those who were promoted had a high preference for communion. Nurturing and sympathetic characteristics are associated

with communal preferences (Bakan, 1966). Hence, the differing motives could be a root cause for creating an environment where less than 50% of employees who participated in trainings and professional development obtained a promotion. This finding was irrelevant to gender and applied across the groups.

The data revealed that men, over women, were more likely to feel capable of being “promoted into leadership today.” In addition, men were also more likely than women to apply for *and* receive a promotion. When narrowing the selection to look at only those who felt capable of attaining a promotion, the statistics remained the same: men were more likely than women to apply for an advancement opportunity. However, in the two highest age groups (46 years and older), there were greater proportional gender differences in roles with “manager” or greater in their title, but in the three youngest age groups (45 years old and younger), there were not. Perhaps the current gender difference is reflective of historical imbalances within the company. One assumption is that the gender imbalance could decrease as older individuals with “manager” or greater in their title retire.

When looking more specifically at gender comparisons in this study, there were no significant discoveries regarding agency and communion. Having a larger sample of female leaders would have allowed for a more robust study on the impact of gender on communion and agency. However, when comparing only men, the most notable finding was those who were in leadership reflected a tendency to be more communal compared to those who were not. This brings forth an assumption regarding the findings of the present study. Company A has headquarters in the U.S. and Sweden, and conceivably, male leaders are expected to adopt a more communal leadership style to be able to work closely with their global Swedish counterparts. Another assumption is that the higher the position held in the company, the more

likely someone from the Swedish headquarters will be part of the interviewing process. Based on this assumption, the Swedish hiring manager may be more prone to choose candidates who have exhibited communal characteristics. One explanation that can be ruled out is that male leaders at the U.S. headquarters are Swedish. The country of origin was collected from each respondent, and there was only one Swedish male leader out of the forty who responded.

Theoretical Implications

The composition of this research used feminism as an overarching theory, with three supporting theories to add breadth and depth to the study. The repost of Figure 1 serves as a reminder of how these theories were utilized to address the research question.

Figure 1

Holistic Application of Theory to the Research

Feminism is the overarching theory of the study being utilized to examine potential causes and consequences of oppression in an effort to emphasize (and act on) strategies of awareness.

	Post Modern Feminism	Social Constructionism	Possible Selves
What? Understand if bias exists in leadership advancement	Examining the relationship between gender and the self-reported desire for agency (power)	Understanding the cultural composition of gender and power relations in the workplace	Understanding one's beliefs that they are qualified to become leaders
How? Using the interpersonal circumplex...	...To compare the similarities of perceived dominance/power of current male leaders and women who have been denied promotions but feel qualified to lead and determine if there is statistical significance.		
Why? To understand if...	...The culture has created power-based personas for leaders based on gender		

Feminist theory, the lens from which the research was designed, offered the desired context to understand how gender influences power constructs. Feminist theory was used to explore the power imbalance between men and women as well as gain an understanding of how and why the oppression of women exists and evolves. Overall key findings showed that men are more likely to apply and be accepted into leadership positions within the company. The data also presented evidence that there is a growing shift in these patterns. The theoretical conclusion

based on the data is that oppression within the company still exists, although the data support a hopeful pattern of increased leadership of women in the three youngest age categories. This movement toward balance reflects the company's acknowledgment of the lack of women in leadership and represents a positive finding from the data derived in this study. As the company has created multiple initiatives to change these dynamics, it can be assumed (though not verified) that some of the company's techniques to improve diversity are successful.

The postmodern feminist theory was included as a way to understand the coexistence of gender and power and how their relationship correlated to advancement opportunities. Through the research, no difference was found between men and women when it came to the evaluation of agency (power) and its impact on career trajectory. Agency was evaluated using the entire sample as well as only participants in leadership positions. At Company A, the social construction that influences the likelihood of men being promoted more than women either does not exist or may not be measurable through characteristics of communion and agency. The preference for men being promoted into leadership could, for example, be related to other characteristics, such as networking, social opportunities, and other unquantifiable workplace dynamics.

However, interesting findings regarding agency (power) arose when studying employees who sought out professional development opportunities and trainings. The number of men and women who felt capable of leading and had participated in trainings were generally proportionally equal for both genders and showed a strong preference for agency. This finding indicated that those who show more aggressive characteristics are also participating in training and development opportunities within the company. While this finding aligns with a common sense assumption that those who are more aggressive (competitive and proactive) would seek out

these opportunities, it also creates a need for further exploration of this topic. Power preferences influenced learning opportunities, whereas communal preferences influenced promotional opportunities.

Social constructionism was added to the framework to reveal the ways workplace culture influenced the perceived reality of power and gender. Social constructionism allowed for the deconstruction of how the dominant groups align. Although there was no predominant culture in terms of agency or communion for both genders, a construct was determined for men in leadership. A statistically significant correlation of dominant communion values existed among men in leadership compared to those who were not. As the titles increased from “manager” to “director,” the correlation became even stronger. Thus, while there appeared to be no construction of power, in terms of agency, a bias does exist for men.

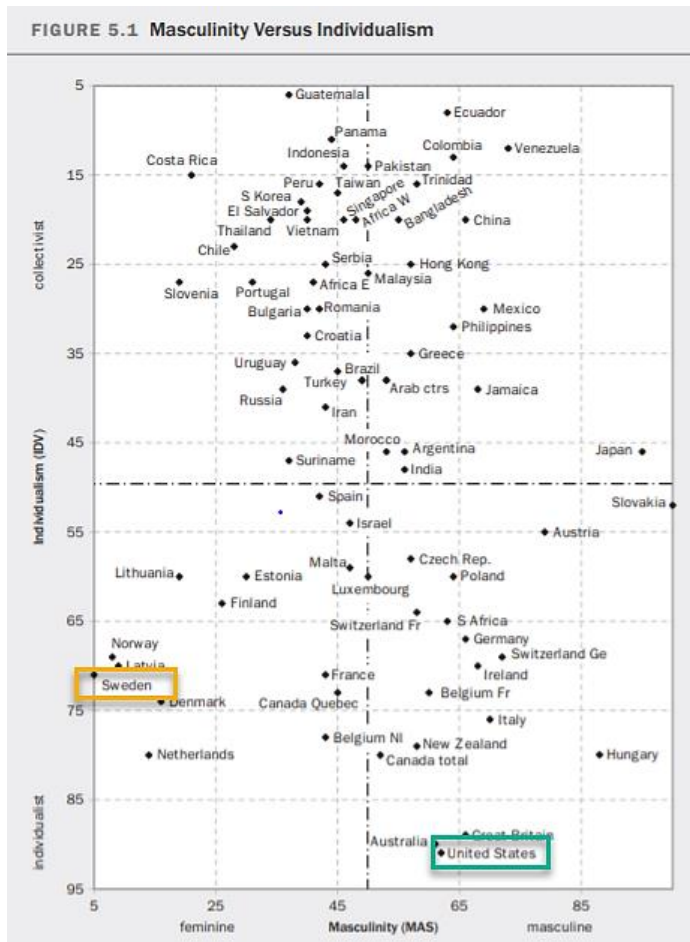
According to Hofstede (2011), Sweden is an extremely feminine society. His definition of feminine aligns closely with communal attributes measured in this study, such as inclusivity. The U.S., on the other hand, is characterized by a more masculine society and can be associated with agentic qualities, including competitiveness (Hofstede, 2011). As Hofstede remarks,

Another type of reaction was found in the Nordic countries Denmark, Sweden, and, to some extent, Norway and Finland. In their case society is less built on hierarchy and rules than in the United States. The idea of “organizational cultures” in these feminine, uncertainty-tolerant countries was greeted with approval, because it tended to stress the irrational and the paradoxical. (Hofstede, 2011, p. 345)

Hofstede (2011) then went on to describe several real-life examples of Company A’s work with masculine cultures. For example, a joint venture project between France and Sweden was completely dissolved because of the conflicting cultures. Although geographic impacts of social

constructionism were not studied, the results prompted further interest in cultural influences on leadership.

Figure 11
Hofstede Mapping



Note. Comparison mapping of Swedish and U.S. cultures.

Figure 11 shows a mapping of countries based on their feminine and masculine characteristics (Hofstede et al, 2010). Sweden, while valuing individualism, also reflects feminine values, whereas the U.S. reflects very high individual values but in a much higher masculine framework. The correlation of dominant communion preferences among men in leadership is contrary to what most research suggests regarding male characteristics, especially in the truck manufacturing arena (Buse, 2016; Deloitte, 2017; Easter, 2017; van Vianen & Fischer, 2002).

Lastly, the possible selves theory was applied to better understand how orientation influences behavior. According to the theory, the collection of optimistic aspirations that creates a desired persona (i.e., the successful or loved self) is the hoped-for self. Feared selves are possible selves that an individual wants to avoid (i.e., the incompetent or alone self; Markus & Nurius, 1986). The importance of the possible selves theory lies within its ability not only to consider a future reality but also to assess the current reality and any potential gap between the two (Markus & Nurius, 1986). Often, identifying this gap can generate motivation to either attain the hoped-for self or avoid the feared self. This study identified a gap in the hoped-for self between men and women. While only 36% of women feel they are capable of being promoted, 53% of men feel that they are capable.

In addition, the data suggested a gap for both men and women in the hoped-for self and the feared self. Of the respondents who felt confident they could lead, 66% of women did not apply for a promotion, while only 49% of men did not apply for a promotion. Many plausible explanations could exist for this rate of response, including, for example, that the right opportunity for a promotion has not yet presented itself. However, even with this explanation, the evaluation of the “rightness of opportunities” from the perspective of women may differ compared to that of men. As other studies have shown, women typically fear failure, and therefore, even when they feel capable, they do not take the next step (Shambaugh, 2012). This finding has many implications for the company, which could create and qualitatively assess a pool of candidates in order to better understand the gap between employees’ confidence to lead and their failure to apply for promotion.

Comparison to Previous Research

A number of parallels, as well as contradictions, exist between this study and the studies referenced previously. The 2017 Deloitte commissioned study, which sought to understand why manufacturing is failing to attract, retain, and promote women within the industry, showed that approximately 75% of respondents believed women were underrepresented within their organization's leadership team. Seventy-four percent of those respondents believed there was an industry bias in favor of men for leadership positions (Deloitte, 2017). This was confirmed in the present study, as the data showed that men were more likely to be promoted into leadership positions than women, and there was a disproportionate number of men in leadership compared to women.

Clason and Turner (2011) examined the communicative constructions of manufacturing workplaces. Some respondents of the survey noted that preferential treatment was given to women who portrayed qualities of assertiveness and used direct communication tactics. According to Menzies (2018), "Leadership theory prescribes that for women to emerge as a leader, they must display the traits commonly associated with effective leadership, including assertiveness" (para. 3). There were no communal nor agentic differences found in the present study between women who are in leadership and those who are not. A more detailed look at the impact of assertiveness scores on women's advancement opportunities is of great interest but requires a larger sample size to evaluate. To date, there has not been an assessment that has been able to quantify the communal and agentic differences between women in leadership positions and women in lesser roles. Most studies, like Menzies (2018), base this assumption on a speculation of women's experiences (in a more qualitative fashion). The majority of research I reviewed throughout this study was qualitative in nature and not quantifiable. The existence of a

masculine culture based on assertive characteristics was not evident in the present study. When it came to men (who have the greatest presence in leadership positions today), this case study found quite the opposite. As previously discussed in detail, this study showed the preferred culture for males in leadership was communitive over assertive.

Other research by Buse (2016) implied that a specific mindset was evident in women who maintained their careers in the male-dominated industry. Women who embraced a meaningful and optimistic mentality persevered. Those women also had an immense network of support from upper management and colleagues as well as supportive networks outside of their professional lives. They also capitalized on opportunities to learn and refine their leadership skills (Buse, 2016). The present study noted that women felt less likely than men that they could be “promoted into leadership today.” The present study also showed that women who felt they could be “promoted into leadership today” were not necessarily applying for promotional opportunities. In addition, the advancement of women who sought out professional development opportunities was not correlated to promotional opportunities. While this finding did not shed light on women’s prospects to maintain their careers in the industry, it did indicate that promotion requires more than the mindset that they can succeed and their participation in leadership training programs to advance into the C-suite.

More general theories, such as the sticky floor, which assesses the psychological barriers that prevent women from progressing through the leadership ranks (Shambaugh, 2012), can be used to evaluate the results of the present study. While the glass ceiling implies that women are unable to reach the top of the ladder, the sticky floor infers that women are less likely than their male counterparts to start climbing the ladder as a result of their own self-fulfilling negative biases of themselves. The possible selves theory provides an interpretation of how this self-

fulfilling bias evolves. Based on the present study, a portion of the statement was found to be true; women were less likely than their male counterparts to start climbing the ladder. The study also showed that women were less confident in their ability to lead than men. However, the interesting piece of the puzzle was that even women who are confident in their ability to lead were less likely to apply for the promotion.

Eagly and Carli (2007) stated that “stereotypes block women’s progress through the labyrinth in two ways: by fueling people’s doubt about women’s leadership abilities, and by making women personally anxious about confirming these doubts” (p. 95). Navigating through the labyrinth requires that women persist in their determination for “access to power and authority” (Eagly & Carli, 2007, p. 8). The present study raised the question of why women who are confident are not applying for promotions and built some assumptions that future studies could examine further. Perhaps it is, as Eagly and Carli (2007) proposed, that women become increasingly anxious about their ability to succeed and require access to power and authority. Neither of these assumptions was tested in the present study. Engaging in a dialogue with the women who indicated they are prepared to lead but have never sought out an opportunity for upward mobility would bring forward compelling information to test this theory.

Wrigley (2002) noted several factors that limit the advancement of women in male-dominated industries. First, women often blamed themselves, stating that their lack of career advancement was their own fault and was not related to their gender. This notion was not examined in the current study, but it offers an interesting perspective for facilitating dialogue. The second factor, gender socialization, accentuated participants’ acknowledgment of cultural differences among genders even though they saw these roles becoming more opportunistic over time. This second factor was validated in the present study, as there was a notable shift in the

data between women in the older age groups and those in the younger age groups, where women were taking an equal role in leadership. However, and almost more importantly, the study did not find any differences in the culture among the two genders. Wrigley's (2002) queen bee effect, wherein women leaders limited other women's opportunities, was also noted as a factor precluding advancement and was not explored in this study. Lastly, previous research noted that corporate culture prevented women from rising to top-level management positions (Wrigley, 2002). From the present study data, there is no evidence to support this claim.

A study by van Vianen and Fischer (2002) found that regardless of gender, a preference for masculine culture existed in the top levels of management—one that did not exist among other non-managerial areas. In other words, the study found that as women moved upward in a company, their preferences and styles became more similar to those of men. While no significant findings were present in the case study from a holistic company perspective, this was true for men. As men progressed through the ranks, those who either naturally possess or adopted a more communicative style were offered more opportunities to advance.

Significance of the Research

There is a dearth of quantitative research that assesses the influence of socially constructed biases on women's mobility in the truck manufacturing industry. This study corroborated the disproportional underrepresentation of women in executive positions in general and which is specifically more apparent in the truck manufacturing industry. This study will contribute to research within the industry and offer strategies that the industry can adopt to assess the underrepresentation of women in managerial and senior positions. This study is the first to use the CSIV instrument in the truck manufacturing industry. It is hoped that this assessment will yield better results with a larger sample of participants who are employed in this industry. For

individual companies, there is value in the replicability of this study. Companies can obtain quantifiable results that will indicate how they may chart better practices that lead to the inclusion of women in the C-suite or senior leadership positions within the company.

Limitations of the Study

The CSIV assessment originated in the field of psychology and had not previously been modified to understand and evaluate the impact on the Class 8 manufacturing industry. The modifications made to this assessment were original and unique, and it became the first sample for the setting to which it was applied. The original norms for the CSIV were created using assessments administered to undergraduate psychology students and therefore did not provide an adequate basis for comparison. Without having a similar comparative sample, difficulty arises in assessing non-normative findings. Thus, the findings can be compared only within the singular case study.

Other limitations include the result of a complex hypothesis, which limited one group in the sample to only 14 participants. As stated in the results section, this reduced the statistical power of the study in general and created a weak assessment of the research question. Initially, the hope was to generalize and apply the findings to the industry. Without the participation of the second company (Company B), this opportunity became non-existent. Thus, the study's generalizability is a concern. While the assessment can be replicated and used as is, it is unwise to make any general assumptions for the industry based on this study. To improve the generalizability, further data from additional companies should be collected and assessed. As with any study, the larger the sample, the greater the chance of being able to generalize the conclusions.

One study indicated that although federally funded projects strive for an 80% return rate on surveys, there is no evidence to show that the high return rate increases generalizability. According to this study, “The costly pursuit of a high response rate may offer little or no reduction of nonresponse bias” (Hendra & Hill, 2019, p. 2). Sources vary regarding necessary response rates for online surveys. An evaluation of multiple articles, databases, and other sources suggests that response rates vary based on the industry and organization. Figure 12 from Nulty (2008) shows average online response rates ranging from 20% to 47%.

Figure 12

Compilation of Response Rates (Nulty, 2008, p.303)

Who	Paper-based response rate (%)	Online response rate (%)	Difference (%)
Cook et al. (2000)	55.6	–	–16
Baruch (1999)	–	39.6	
Dommeyer et al. (2004)	75	43	–32
Ballantyne (2005)	55	47	–8
Ogier (2005)	65	30	–35
Nair et al. (2005)	56	31	–31
Griffith University (2005)	57	20	–37
Sweep (2006)*	56	23	–33
Watt et al. (2002)	32.6	33.3	<1
Overall	56	33	–23

*(T. Sweep, pers. comm.)

Furthermore, Fulton (2018) indicated that in “organizational studies that use key informants—the mean response rate for published studies is 34 percent” (abstract). The survey distributed in the present study was disseminated by an HR senior-level employee (referenced by Fulton as a key informant), whose seniority may have discouraged responses and impacted the response rate. Additionally, the distribution of the email to participants coincided with the start of one of the most unprecedented times in history, the COVID-19 pandemic. Employees had just begun working from home and had mounting concerns related to their job security, personal health, and well-being. Despite the stated limitations, the response rate of this survey was just under 20% but

met the statistically validated formula for sample size using Cochran's 1977 sample size formula (Dattalo, 2008; Freund & Wilson, 2003).

Trustworthiness of the Data

As previously mentioned as a limitation, administering the survey through the HR department could create concerns regarding the trustworthiness of the data. In any setting where an employee is asked to complete an assessment by someone whom they believe to have influence over their career, there is a risk that the information collected can be biased. A self-reported assessment allows a participant to select whichever answer they feel creates a better outcome (Demetriou et al., 2015). On the other hand, some research has indicated that when self-reports of interpersonal problems converge with peer reports, peer ratings provide an alternative point of view that may explain unique variations in some outcomes (Clifton et al., 2005). The self-reported nature of this study, paired with its administration through HR, was identified as the biggest risk for the trustworthiness of the data.

Other methods and procedures contribute to ensuring the trustworthiness of the data. Once the data was collected, a data triangulation was completed by me, the methodologist supporting the dissertation, and the developer of the assessment. The results were calculated using multiple software applications and techniques. The software used in the analysis included SPSS, Excel, and Qlik Sense. Based on the software, different techniques were applied to achieve results, which all led to the conclusions that were presented previously. In addition, the reliability of the instrument has been validated and proven to have "adequate internal and test-retest reliability, and convergent and discriminant validity with measures of interpersonal traits, interpersonal problems, and implicit interpersonal motives" (Locke, 2019, p. 1). In conclusion,

while there are potential concerns with the self-reported data, the assessment and methodology are well-founded.

Recommendations for the Company

Combining the results of the study, the commonalities and differences of other studies in the field, and the application of the theories has provided insight for the next steps. Although it was not ideal that the second company (Company B) did not participate in the study, their absence enabled conclusions and recommendations to be targeted to Company A. Based on the results of the data, I will make three recommendations for the company to consider in the pursuit of gender inclusion and equality.

Assess Who Receives Training and Why

Training is a critical component of any HR strategy, especially as it relates to preparing employees for leadership. Company A has a disconnection between the number of employees who attend trainings and those who receive promotions. Thus, this is an area that should be investigated. There are multiple ways this should be assessed. First and foremost, since the data showed high preferences for agency for those who participate in trainings, how employees are nominated into training programs should be discussed. For instance, are these employees offered training opportunities because they are the most aggressive in voicing their interest? Second, because promotion opportunities (at least for men) showed high communion preferences, how employees with high communion preferences are attracted and recruited to training programs should be evaluated. In addition, how trainings can influence or address agentic and communal motives should be explored. Ideally, techniques to understand individual agency and communion preferences should also be explored.

It is recommended that the company consult Kirkpatrick's Four Levels when implementing training activities. The four levels—reaction, learning, behavior, and results—are meant to guide training departments through the process of bringing a company's area of need full circle to achieve measurable results (D.L Kirkpatrick & J.D. Kirkpatrick, 2007). If the company desires to offer training programs specifically to move the workforce or targeted groups of the workforce to designated areas of the CSIV, Kirkpatrick's Four Levels provide an ideal platform. Once an employee's CSIV characteristics (such as agency and communion) are identified, the CSIV can easily evaluate if any targeted change in these characteristics has been made. This is important not only to determine where employees and leaders are best positioned according to their agentic and communal attributes but also to further develop ways to coach them to succeed. Kirkpatrick's Four Levels emphasizes the capability to measure successful outcomes, which the CSIV enables.

Consistent Focus Group Evaluations

In order to promote diversity in the C-suite, it is critical that all employees feel confident applying for promotional opportunities. Less than half of both men and women who are confident in their ability to lead are applying to career advancement opportunities. This finding needs to be understood by the HR community in order to achieve the company's stated goal of diversity, especially since the percentage is much lower for women than it is for men. The reasons why men do not apply for promotions may differ from those of women, and any gender-based differences should be explored. For example, women may have to balance their home and work responsibilities and may be more fearful than men of having to prioritize one over the other.

In addition, some research shows alternative reasons for why women do not apply for higher roles in their company. A study by Hewlett Packard indicated “men are confident about their ability at 60%, but women don’t feel confident until they’ve checked off each item on the list” (Mohr, 2014, p. 2). Focus groups may be able to reveal and address the personal and professional barriers women face. Implementing a consistent process of collecting data through dialogue in focus groups is essential. As a next step, the HR organization should evaluate specific strategies that address the most common challenges faced by women pursuing promotional opportunities in the company. This will aid in confronting the issue and in alleviating the established underrepresentation of women.

Analyze Gender Skills Gap and Inclusion

Although this study verified that men were more likely to apply and be accepted into advanced positions, the question remains, why is this the case? As a next step for Company A, the advanced positions (those with the word “director” or higher in the title) should be evaluated from several angles. First, all applicants’ credentials should be examined to decipher which qualifications the female applicants were missing (for example, education, experience, soft skills, peer reviews, etc.). Determining the lack of skills or education can provide a guide for the training and coaching of women in the future. Second, each applicant who was offered a leadership position should be evaluated to determine what was unique about the applicant. This will identify the most sought out qualities desired for these positions, which can also be incorporated into training and coaching materials. Lastly, the hiring manager and HR should provide insights on how they arrived at their decision, which could then be compiled and used to determine if a bias exists or if female applicants consistently lack a desired quality. These

evaluations should be integrated into a formalized process for each leadership position that is filled.

Recommendations and Implications for Future Research

The way in which this assessment was constructed, administered, and analyzed is replicable. Without making any adjustments, this study can be replicated to produce results that can be analyzed and applied to the truck manufacturing industry. This study contributes to the conceptual and theoretical framework in many ways. The frameworks used are valid to assess companies at the case study level in order to discover oppression, socially constructed norms, power constructs, and employees' views of themselves. This study assessed each of these factors and provided concrete findings. Oppression still exists, manifesting as men being more likely than women to be promoted within the company. Men who are leaders adopt a communal preference. Power constructs, in terms of agency, are present in those who pursue training and development opportunities. Women's possible selves are less confident than men's, resulting in fewer women who apply for promotional opportunities.

Combining these theories offers a unique approach, one that looks at multiple levels: the individual employee, the socially formed groups with the company, and the overall company culture. Implications and recommendations for future studies are critical to review. An additional theory that could be utilized in future studies is the leader-member exchange (LMX) theory. The LMX theory denotes how the exchanges between leaders and followers dictate their relationships (Martin et al., 2016). A leader's influence is acquired through the development of strong leader-follower relationships. LMX concepts and the behaviors represented in the interpersonal circumplex measure overlap, particularly in terms of the importance of mutual trust and respect in the working relationship. As the interpersonal circumplex highlights, people can be high in

both agentic and communal motives (i.e., the upper-right quadrant). These people are warm and strong; they can give direct feedback with the goal of being constructive and supportive; they enjoy listening to and collaborating with their team and can also make decisions that some members may dislike. In addition to adding another lens to view the research through, four specific suggestions for future research are listed below.

1. There are cautions that should be taken when attempting to apply the results of this study to the truck manufacturing industry at large. One assumption is that findings may be directly linked to the geographic culture of the company, which varies greatly throughout the industry (i.e., German, Swedish, etc.). There are many plausible explanations as to why the results showed men to be more communal when they are in leadership positions at Company A. One could be that as men progress through the ranks and surround themselves with a male-dominated C-suite, they become more comfortable and less agentic. In this case, the findings would be applicable across the industry. As an alternative explanation, the Swedish culture of the company could weigh heavily on those who are brought into leadership positions. As such, providing this assessment to additional companies with varied geographical origins would provide better insights into any correlations.
2. Given the quantitative nature of the study, in-depth and personal feedback was not obtained from participants. A mixed-method approach that brings additional deep questioning through qualitative methods may provide more robust information. In order to obtain more targeted results, the employees should be asked to provide contact information so a third-party researcher can delve deeper into the questions. As an example, there is intrinsic value in determining why employees who feel competent to

lead are not pursuing leadership opportunities. It is essential to evaluate any biases that may exist and thus limit opportunities for women. An additional question could be added to this assessment: “Why have you not applied for a promotion?” Corresponding answers could include “I have not found an opportunity that is interesting;” “I have not found an opportunity for which I am qualified;” “I do not think I will be chosen for the position if I apply;” and “Other.” Analyzing the answers to these questions would provide insights into how the company can ensure that women who feel ready to lead will apply for promotional opportunities. This information is crucial for creating a complete picture of the company’s culture. Without this data, unfounded assumptions could otherwise paint a picture that may not be reflective of what is actually occurring.

3. Understanding the expectations of HR and hiring managers could provide a great deal of insight into the data. Determining who they are looking to hire in terms of agency and communion preferences could draw parallels between these characteristics and the advancement of women. Asking HR and hiring managers to complete a CSIV profile for the type of employee they would like to hire would provide a better understanding of the characteristics desired in the company’s leadership. These characteristics can then be compared to actual employee profiles to determine who might be chosen and why, ideally illuminating any biases.
4. Agency and communal qualities were examined separately (as independent variables) in this study. In the future, it would be of interest to explore their combined effect. While my personal experience of agency guided my original hypothesis, it also limited me from considering the important interaction the combined impact communion and agency have on leadership effectiveness. This would create a layered analysis of two types of power,

examining both assertiveness and independent action (agency) and how strong relationships with others builds influence (communal). This could conceivably be done using the factor “NO” to represent the octant that intersects agency and communion combined. This is important because, as the interpersonal circumplex highlights, people can be high in *both* agentic *and* communal motives (i.e., the upper-right quadrant, “NO”). In addition, mapping individuals and or groups on the interpersonal circumplex would provide a better visualization of their characteristics.

Each of these recommendations takes both time and an investment of resources. There is not an easy formula for discovering and addressing long-standing biases. The most important step is to drill down far enough into the data to understand where changes need to be applied.

Conclusion

This study investigated gender differences in self-reported measures of agency in career upward mobility using the CSIV. The targeted sample was Company A’s North American headquarters, one company in the truck manufacturing industry. The results revealed that the glass ceiling still exists, although there is no profound evidence that socially constructed biases are holding it in place. The gender disparity in executive positions still shows a lack of opportunity for women to advance within Company A. However, there were no statistically significant differences between self-reported agency for women who feel capable of leading and are denied promotions and men who are current leaders. In addition, the data shows progress in eliminating barriers for women to access promotions to leadership positions. Studies and efforts such as this one provide insights and recommendations for companies to further their knowledge on why women’s presence in leadership is not where it should be. This furthers the initiative to better understand why the glass ceiling still exists and, based on specified data for the company,

how to address it. A key assumption regarding feminism is that “all feminist activity can be seen as a form of activism” (Tyson, 2015, p. 88). Taking up the theory requires a commitment to implement actions by connecting abstract ideas to illuminate oppressive structures and ultimately create lasting change (Flax, 1987). Ultimately, this study has developed a quantitative and repeatable assessment that HR organizations can adopt to further pinpoint existing barriers within their organizations. The results and recommendations of this study can generate actionable insights that will further promotional opportunities for women’s advancement.

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Appendix A


Approval to Use CSIV from Kenneth Locke

October 14, 2019

Dear IRB,

I am pleased to grant Natalie Martin unconditional permission to use the Circumplex Scales of Interpersonal Values in her research. If you have any questions, please do not hesitate to contact me (klocke@uidaho.edu).

Sincerely,

A handwritten signature in cursive script that reads "Kenneth Locke".

Kenneth Locke

Professor and Licensed Psychologist

Appendix B

CSIV Assessment Sent to All Participants

For each item below, answer the following question: "When I am at work, in general how important is it to me that I act or appear or am treated this way?" Use the following rating scale:

0	1	2	3	4
not	mildly	moderately	very	extremely
important to me	important to me	important to me	important to me	important to me

Sample Item:

When I am at work, it is... 0 1 2 3 4 ...that I be well dressed

If when you are at work, you generally consider it extremely important that you be well-dressed, you would circle 4. If it is not important that you be well dressed, you would circle 0. If you consider it moderately important that you be well-dressed, you would circle 2.

1. When I am at work, it is... 0 1 2 3 4 ...that I appear confident
2. When I am at work, it is... 0 1 2 3 4 ...that I not reveal my positive feelings for my coworkers
3. When I am at work, it is... 0 1 2 3 4 ...that I feel connected to my coworkers
4. When I am at work, it is... 0 1 2 3 4 ...that I appear forceful
5. When I am at work, it is... 0 1 2 3 4 ...that I conform to my coworkers' expectations
6. When I am at work, it is... 0 1 2 3 4 ...that I am unique
7. When I am at work, it is... 0 1 2 3 4 ...that I keep my guard up
8. When I am at work, it is... 0 1 2 3 4 ...that I put my coworkers needs before mine
9. When I am at work, it is... 0 1 2 3 4 ...that my coworkers acknowledge when I am right
10. When I am at work, it is... 0 1 2 3 4 ...that I not make a social blunder
11. When I am at work, it is... 0 1 2 3 4 ...that my coworkers show interest in what I have to say

12. When I am at work, it is... 0 1 2 3 4 ...that I attack back when I am attacked
13. When I am at work, it is... 0 1 2 3 4 ...that I not get into an argument
14. When I am at work, it is... 0 1 2 3 4 ...that my coworkers not deceive me
15. When I am at work, it is... 0 1 2 3 4 ...that my coworkers not know what I am thinking or feeling
16. When I am at work, it is... 0 1 2 3 4 ...that my coworkers not see me as getting in their way
17. When I am at work, it is... 0 1 2 3 4 ...that I get the chance to voice my views
18. When I am at work, it is... 0 1 2 3 4 ...that I appear aloof
19. When I am at work, it is... 0 1 2 3 4 ...that my coworkers support me when I am having problems
20. When I am at work, it is... 0 1 2 3 4 ...that I keep the upper hand
21. When I am at work, it is... 0 1 2 3 4 ...that I do what my coworkers want me to do
22. When I am at work, it is... 0 1 2 3 4 ...that I express myself openly
23. When I am at work, it is... 0 1 2 3 4 ...that I not show I care about my coworkers
24. When I am at work, it is... 0 1 2 3 4 ...that I get along with my coworkers
25. When I am at work, it is... 0 1 2 3 4 ...that my coworkers respect my privacy
26. When I am at work, it is... 0 1 2 3 4 ...that I not make mistakes in front of my coworkers
27. When I am at work, it is... 0 1 2 3 4 ...that my coworkers understand me
28. When I am at work, it is... 0 1 2 3 4 ...that I put my needs first
29. When I am at work, it is... 0 1 2 3 4 ...that I live up to my coworkers expectations
30. When I am at work, it is... 0 1 2 3 4 ...that my coworkers respect what I have to say
31. When I am at work, it is... 0 1 2 3 4 ...that my coworkers keep their distance from me
32. When I am at work, it is... 0 1 2 3 4 ...that my coworkers not reject me
33. When I am at work, it is... 0 1 2 3 4 ...that I not back down when disagreements arise
34. When I am at work, it is... 0 1 2 3 4 ...that I not say something stupid

35. When I am at work, it is... 0 1 2 3 4 ...that my coworkers come to me with their problems
36. When I am at work, it is... 0 1 2 3 4 ...that I am the one in charge
37. When I am at work, it is... 0 1 2 3 4 ...that I not make my coworkers angry
38. When I am at work, it is... 0 1 2 3 4 ...that I have an impact on my coworkers
39. When I am at work, it is... 0 1 2 3 4 ...that I do better than my coworkers
40. When I am at work, it is... 0 1 2 3 4 ...that I make my coworkers feel happy
41. When I am at work, it is... 0 1 2 3 4 ...that my coworkers not tell me what to do
42. When I am at work, it is... 0 1 2 3 4 ...that I not expose myself to the possibility of rejection
43. When I am at work, it is... 0 1 2 3 4 ...that my coworkers are considerate
44. When I am at work, it is... 0 1 2 3 4 ...that I avenge insults and injustices against me
45. When I am at work, it is... 0 1 2 3 4 ...that I go along with what my coworkers want to do
46. When I am at work, it is... 0 1 2 3 4 ...that my coworkers show me respect
47. When I am at work, it is... 0 1 2 3 4 ...that my coworkers see me as cool and unemotional
48. When I am at work, it is... 0 1 2 3 4 ...that my coworkers approve of me
49. When I am at work, it is... 0 1 2 3 4 ...that I am obeyed when I am in authority
50. When I am at work, it is... 0 1 2 3 4 ...that I not expose myself to ridicule
51. When I am at work, it is... 0 1 2 3 4 ...that my coworkers stay with me when things aren't going well
52. When I am at work, it is... 0 1 2 3 4 ...that I win if there is an argument
53. When I am at work, it is... 0 1 2 3 4 ...that I not embarrass myself
54. When I am at work, it is... 0 1 2 3 4 ...that my coworkers see me as responsible
55. When I am at work, it is... 0 1 2 3 4 ...that I appear detached
56. When I am at work, it is... 0 1 2 3 4 ...that my coworkers think I am a nice person
57. When I am at work, it is... 0 1 2 3 4 ...that my coworkers admit it when they are wrong

58. When I am at work, it is... 0 1 2 3 4 ...that I keep my thoughts or feelings to myself
59. When I am at work, it is... 0 1 2 3 4 ...that my coworkers show concern for how I am feeling
60. When I am at work, it is... 0 1 2 3 4 ...that my coworkers mind their own business
61. When I am at work, it is... 0 1 2 3 4 ...that my coworkers not get angry with me
62. When I am at work, it is... 0 1 2 3 4 ...that my coworkers listen to what I have to say
63. When I am at work, it is... 0 1 2 3 4 ...that I not reveal what I am really like
64. When I am at work, it is... 0 1 2 3 4 ...that my coworkers not get their feelings hurt

Appendix C

Pre-Questionnaire Sent To All Participants

1. What is your age?

- 18 to 24 years
- 25 to 34 years
- 35 to 44 years
- 45 to 54 years
- 55 to 64 years
- Age 65 or older

2. What is the highest degree or level of education you have completed?

- Less than high school
- High school graduate (includes equivalency)
- Some college, no degree
- Associate degree
- Bachelor's degree
- Graduate or professional degree
- Ph.D.

3. What is your marital status?

- Single (never married)
- Married
- Separated
- Widowed
- Divorced

4. What is your gender?

- Female
- Male
- Transgender
- Other

5. What is your Country of Birth?

- United States
- Sweden
- Brazil
- France
- Canada
- Other (specify) _____

6. How long have you been in your current role?

- 1-2 Years
- 2-5 Years
- 5-10 Years
- More than 10 Years

7. In your current job role are you managing people?

- Yes
- No

8. In your current job role do you have any of the following in your given title?

- Manager
- Director
- Vice President
- Senior Vice President
- President
- I have none of these in my title today

9. Are you satisfied in your current position?

- Yes
- No

10. How many times have you applied for a promotion in the past 5 years?

- I have not applied for a promotion
- 1-3 times
- 3-5 times
- 5-7 times
- More than 7 times

11. Have you applied to a director level position or higher and been accepted into the role?

- I have applied for a director role or higher and accepted into the role
- I have applied for a director role or higher but have not been accepted into the role
- I have not applied for a director role or higher

12. How capable do you feel you are of being promoted within the company into a leadership role?

- I do not have any interest in being promoted into leadership role higher than the one I'm in today
- I feel that with some development and training I could be promoted into leadership
- I feel that I could be promoted into leadership today

13. What have you been told/understood as the reason for a delay or not being promoted?

- I have not been denied a promotion
- I do not know the reason
- I do not have the technical skills (degree requirements, etc.)
- I do not have the experience
- I do not have the soft skills (personality, influence, etc.)
- Other: _____

14. Have you participated in any trainings, workshops or leadership programs sponsored by your company?

- No, I have not
- Yes, at least one
- Yes, several

Appendix D

HR Email Sent Out to Company Employees

Company A,

I am writing to let you know a few key points about the assessment you have an opportunity to engage in. First and foremost, you should be aware that *your participation is voluntary and there is no penalty or loss of benefits if you decided not to participate or discontinue participation.* **All responses will remain anonymous and be stored in a secure 3rd party database to ensure your privacy.**

The purpose of the research is to further investigate if the definition of a leader has been socially constructed in a way that shows bias, specifically in the class 8 manufacturing industry. The procedures of the study will use a set of pre-questions along with the Circumplex Scales of Interpersonal Values (CSIV) assessment.

There are no benefits or compensation associated with this study. It is estimated that the questionnaire (65 questions) will take approximately 15 minutes for you to complete. If you are interested in the results of this study, you can reach out to me directly and I will be happy to share the results with you once they are published. In addition, if you have any questions about this assessment, please feel free to contact me directly at anonymousemail.@comapny.com.

Follow this link to the Survey:

Take the Survey

Thank you in advance for your consideration.

Sincerely,

Anonymous

HR

Company A

Appendix E

Email Sent Out By Women in Trucking Association

One of our WIT members employed by [Company A] is working on a dissertation to better understand socially constructed bias in the workplace (specifically within our industry). She is looking for support to have other OEM's encourage their workforce to complete the assessment to gather more data. If you are interested, please review the attachment which contains the details of this exciting project. Feel free to reach out to her directly with your response: Natalie Martin (email: Natalie.martin@volvo.com | cell: 336-508-3510).

Thank you in advance for your support.

Ellen Voie, CAE, PDC

[Women In Trucking Association, Inc.](#)

P O Box 400, Plover, WI 54467-0400

888-464-9482 920-312-1350 Mobile

[Twitter](#) | [Linked In](#) | [Facebook](#) | [YouTube](#)

Appendix F

IRB Exemption

IRB irb@appstate.edu [via](#) adminliveunc.onmicrosoft.com

Mon, Nov 4, 2019,
3:49 PM

To: Natalie Martin
Educational Leadership College of Business
CAMPUS EMAIL

From: Nat Krancus, IRB Administrator
Date: 11/04/2019
RE: Notice of IRB Exemption
A grants #:
Grant Title:

STUDY #: 20-0111

STUDY TITLE: Are Socially Constructed Biases in the Workplace Keeping the Glass Ceiling Alive?

Exemption Category: 2.Survey, interview, public observation

This study involves minimal risk and meets the exemption category cited above. In accordance with 45 CFR 46.101(b) and University policy and procedures, the research activities described in the study materials are exempt from further IRB review.

Unless otherwise requested by the IRB Administration, exemptions do not require review of consent forms, recruitment materials, etc. Any recruitment and consent documents you have uploaded are there for your access, but you do not need to submit a modification when you change these forms or processes.

Study Change: Proposed changes to the study require further review when the change involves:

an external funding source,

the potential for a conflict of interest,

a change in location of the research (i.e., country, school system, off site location),

the contact information for the Principal Investigator,

the addition of non-Appalachian State University faculty, staff, or students to the research team, or

the basis for the determination of exemption. Standard Operating Procedure #9 cites examples of changes which affect the basis of the determination of exemption on page 3.

Investigator Responsibilities: All individuals engaged in research with human participants are responsible for compliance with University policies and procedures, and IRB determinations. The Principal Investigator (PI), or Faculty Advisor if the PI is a student, is ultimately responsible for ensuring the protection of research participants; conducting sound ethical research that complies with federal regulations, University policy and procedures; and maintaining study records. The PI should review the IRB's list of PI responsibilities.

To Close the Study: When research procedures with human participants are completed, please send the Request for Closure of IRB Review form to irb@appstate.edu.

If you have any questions, please contact the IRB Administrator at (828) 262-4060.

Best wishes with your research.

Websites for Information Cited Above

Note: If the link does not work, please copy and paste into your browser, or visit <https://researchprotections.appstate.edu/human-subjects>.

1. Standard Operating Procedure

#9: [http://researchprotections.appstate.edu/sites/researchprotections.appstate.edu/files/IRB20SO P920Exempt%20Review%20Determination.pdf](http://researchprotections.appstate.edu/sites/researchprotections.appstate.edu/files/IRB20SO%20P920Exempt%20Review%20Determination.pdf)

2. PI

responsibilities: <http://researchprotections.appstate.edu/sites/researchprotections.appstate.edu/files/PI20Responsibilities.pdf>

3. IRB forms: <http://researchprotections.appstate.edu/human-subjects/irb-forms>

Vita

Natalie Sherrie Martin joined the Class 8 Truck Manufacturing Industry in 2014 as part of the International Graduate Program for Logistics and Manufacturing, completing a 12-month program of training in Brazil, China, Sweden, and France. Upon completing her graduate program, Natalie became an Industrial Investigation Leader within Group Trucks Operations, where she successfully managed industrial projects, performed analysis to drive manufacturing efficiency, and benchmarked order-to-delivery processes. Her next assignment was as the Connected Vehicle Business Development Manager, where she was the commercial owner of the analytics platform. In her current role, Natalie manages critical processes and customer activities to most effectively support the company's largest fleet customers and support long-term business growth.

Throughout her career, her managers, mentors, and colleagues have inspired her to better understand the environment in which she works and how she can be a contributor to sustainable and organic change for women. Natalie attended Appalachian State University in Boone, North Carolina, earning a bachelor's degree in mathematics education, an MBA with a concentration in International Business, and an MA in Higher Education. She will complete her doctorate of education in May 2021.