Local and Remote Workgroups’ Perceptions of Female Leaders: A Vehicle Maintenance Department Study

Submitted by
James Morris

A Dissertation Presented in Partial Fulfillment
of the Requirement for the Degree
Doctorate of Business Administration

Columbia Southern University
Orange Beach, Alabama
January 17, 2017
Local and Remote Workgroups’ Perceptions of Female Leaders: A Vehicle Maintenance Department Study

By

James Morris

has been approved

January 17, 2017

APPROVED:

James Ready, DBA, Chairperson

James Marion, PhD, Committee Member

ACCEPTED AND SIGNED:

Elwin Jones, PhD, Assistant Provost (Business)
Abstract

Previous research has indicated how female leaders were perceived within church-related organizations; however, no studies could be located that show the difference in perception of female leaders a vehicle maintenance department, where the workforce is considered nontraditional for females. The purpose of this study was to determine whether workgroup proximity explained the differences in the perception of female leaders between remote workgroups and local headquarter workgroups in a vehicle maintenance department. Quantitative causal comparative non-interventional research was conducted using the interpretive theoretical foundation. The study indicated perceptions of female leaders were significantly different for remote-based workgroups when compared to headquarter-based workgroups ($n = 15$). The primary difference was between the Preventive/Scheduled Maintenance Workgroup and the Planning/Analysis workgroup. Future research is recommended on a larger population that covers multiple locations.

*Keywords*: Nontraditional Occupations, Vehicle Maintenance, Perception Female Leaders
Table of Contents

List of Figures ........................................................................................................................................ ith

Chapter 1: Introduction to the Study........................................................................................................ 1

Background of the Problem ..................................................................................................................... 2

Problem Statement .................................................................................................................................. 3

Purpose of the Study ............................................................................................................................... 4

Research Questions ................................................................................................................................. 5

Advancing Scientific Knowledge ........................................................................................................... 6

Significance of the Study ......................................................................................................................... 7

Rationale for Methodology ...................................................................................................................... 9

Nature of the Research Design for the Study ......................................................................................... 9

Definition of Terms ................................................................................................................................. 10

Assumptions, Limitations, Delimitations ............................................................................................... 11

Summary and Organization of the Remainder of the Study .................................................................. 12

Chapter 2: Literature Review................................................................................................................ 15

Introduction ........................................................................................................................................... 15

Theoretical Foundation .......................................................................................................................... 17

Expressiveness ....................................................................................................................................... 19

Language processing .............................................................................................................................. 20

Cognition ................................................................................................................................................. 21

Non-verbal sense .................................................................................................................................... 23

Review of Literature .............................................................................................................................. 24

Effective female leaders ......................................................................................................................... 25
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Design</td>
<td>51</td>
</tr>
<tr>
<td>Population and Sample Selection</td>
<td>53</td>
</tr>
<tr>
<td>Sources of Data</td>
<td>55</td>
</tr>
<tr>
<td>Validity</td>
<td>56</td>
</tr>
<tr>
<td>Reliability</td>
<td>57</td>
</tr>
<tr>
<td>Data Collection Procedures</td>
<td>57</td>
</tr>
<tr>
<td>Data Analysis Procedures</td>
<td>58</td>
</tr>
<tr>
<td>Reliability analysis</td>
<td>58</td>
</tr>
<tr>
<td>Factor analysis</td>
<td>59</td>
</tr>
<tr>
<td>Test of Normality</td>
<td>59</td>
</tr>
<tr>
<td>Test of Association</td>
<td>60</td>
</tr>
<tr>
<td>Ethical Considerations</td>
<td>60</td>
</tr>
<tr>
<td>Limitations</td>
<td>61</td>
</tr>
<tr>
<td>Summary</td>
<td>62</td>
</tr>
<tr>
<td>Chapter 4: Data Analysis and Results</td>
<td>63</td>
</tr>
<tr>
<td>Introduction</td>
<td>63</td>
</tr>
<tr>
<td>Descriptive Data</td>
<td>64</td>
</tr>
<tr>
<td>Data Analysis Procedures/Results</td>
<td>67</td>
</tr>
<tr>
<td>Test of Reliability</td>
<td>68</td>
</tr>
<tr>
<td>Factor Analysis</td>
<td>68</td>
</tr>
<tr>
<td>Test of Outliers</td>
<td>69</td>
</tr>
<tr>
<td>Test of Normality</td>
<td>70</td>
</tr>
<tr>
<td>Test of Association</td>
<td>70</td>
</tr>
</tbody>
</table>
Summary ................................................................................................................................................. 72

Chapter 5: Summary, Conclusions, and Recommendations ........................................................................... 74

Summary of the Study .................................................................................................................................... 74

Summary of Findings and Conclusion ........................................................................................................... 75

Implications .................................................................................................................................................... 76

Theoretical implications ................................................................................................................................. 77

Practical implications .................................................................................................................................. 78

Future implications ........................................................................................................................................ 79

Recommendations ........................................................................................................................................... 79

Recommendations for future research ......................................................................................................... 79

Recommendations for practice ...................................................................................................................... 80

Conclusion .................................................................................................................................................... 81

References .................................................................................................................................................... 83

Appendix A .................................................................................................................................................. 95

Appendix B .................................................................................................................................................. 97

Appendix C .................................................................................................................................................. 98

Appendix D ................................................................................................................................................ 100

Appendix E ............................................................................................................................................... 101

Appendix F ............................................................................................................................................... 102
List of Figures

Figure 1. Occupations with the most female employees .............................................. 36
Figure 2. Occupations with the fewest female employees ............................................. 37
Figure 3. Sample Size as determined by G*Power ....................................................... 54
Figure 4. Study participants by Department .................................................................. 65
Figure 5. Study participants by Gender ......................................................................... 65
Figure 6. Study participants by Workgroup .................................................................. 66
Figure 7. Study Participants by Management Experience ............................................. 67
Figure 8. Initial Factor Analysis Solution ..................................................................... 68
Figure 9. Boxplot of Survey Scale ............................................................................... 70
Figure 10. Post Hoc Test ............................................................................................. 72
Figure 11. Means Plot of Survey Scores by Workgroup .............................................. 76
Chapter 1: Introduction to the Study

The number of females occupying leadership positions has increased in the 21st century as compared to the previous centuries (Kessler, 2014). Females occupy nurses, retail sales workers, and office and administrative support workers’ management positions (Zula, 2014). A 2014 study indicated females occupied 68.7 percent of office and administrative support-management positions (Zula, 2014). However, females are also occupying nontraditional management positions. Nontraditional occupations for females can be defined as occupations which have less than 25 percent females of the total employed workforce. Nontraditional female management occupations include construction workers, mechanics, and engineers (Zula, 2014).

Although females continue to occupy traditional corporate leadership positions, females have to overcome stereotypical attitudes, good ole boy networks, and the glass ceiling (Hill, 2013). Females encounter the lack of support and role models from corporate executives. Females, in addition, make 75 percent of the salary of their white male counterparts and are consequently turning to nontraditional leadership positions such as engineering, science technicians, and computer specialists (Hill, 2013). One study indicated that females accounted for 7.7 percent of engineering managers in the total workforce (Zula, 2014). However, as with any managerial position, females in nontraditional managerial positions are expected to lead effectively and adapt accordingly. This research focuses on local and remote workgroups’ perceptions of female leaders within a nontraditional vehicle maintenance department.

Chapter one contains a background of the study, the problem statement, and the purpose of the study. Chapter one also contains the research question, how scientific knowledge will be advanced, the significance of the study, the rationale for methodology, and the nature of the research design for the study. Finally, chapter one includes definitions of terms, assumptions,
limitations, and delimitations, and ends with a summary and organization of the remainder of the study.

**Background of the Problem**

In 2010, females were occupying positions as registered nurses, elementary and middle school teachers, retail salespersons, customer service representatives, and bookkeeping and accounting clerks (Zula, 2014). Conversely, males were occupying positions as maintenance workers, engineers, and mechanics. The 2010 statistics of nontraditional occupations indicated that 7.7 percent of engineering managers in the workforce were females and 6.3 percent of managers of mechanics were females (U.S. Department of Labor, 2010). Engineering and mechanic careers are primary functions for a vehicle maintenance department responsible for the engineering, testing, and repairing of pick-up and delivery (PUD) vehicles and ground support equipment (GSE). Engineering and mechanic careers are also the areas females should pursue in order to become leaders in a nontraditional vehicle maintenance industry.

When female managers are underrepresented, organizations take the risk of missing out on opportunities such as pro-social behavior which entails caring for others, maintaining personal relationships, and taking responsibility for the emotional well-being of others (Kessler, 2014). Organizations also take the risk of missing out on panorama views which can be described as overview perspectives for assessing opportunities and risks. Furthermore, when female managers are underrepresented, instances could arise where the female manager will copy the behavior or leadership style of the male counterparts (Kessler, 2014). The lack of a pro-social behavior, panorama views, and leadership styles could have an adverse effect on the relationship between employees/workgroups and female leaders.
Female library managers 30 years ago indicated females had a different view of leadership than females library managers have today (Landgraf, 2015). Female library managers once believed that managers should have all of the answers related to the position. However, female library managers in 2015 believed that managers should have better situational awareness which is a better understanding of how things will impact the organization or employee motivation (Landgraf, 2015). Better situational awareness could have a positive effect on the relationship between employees and female leaders.

**Problem Statement**

It was unknown whether workgroup proximity explains the differences in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups in a vehicle maintenance department. Vehicle maintenance workgroups are based at headquarters as well as remote locations. The groups include Asset Management, Warranty, Innovation and Reliability, and Preventive/Scheduled Maintenance. The vehicle maintenance employees have the responsibility of ensuring the PUDs and GSE are cared for properly, are replaced when analyses show the age, utilization, and maintenance costs have exceeded historical averages, and are engineered and manufactured based on operations’ needs.

Managers ensure the vehicle maintenance employees have the tools and resources required to avoid disruptions in operations due to inoperable PUDs or GSE. Managers are also expected to serve as substitutes in the absence of their employees and are expected to serve as problem solvers. Moreover, managers are expected to be able to inspire and motivate others to create more purposeful and fulfilling workplaces (Warburton, 2015). John Izzo stated -

A leader is anyone that has a positive influence on the people around them. I know people who have leader on their business card who don’t have a positive influence on the
people around them. I also know people who are at the front line that create an incredible ripple of positive influence around them (Warburton, 2015, p. 36).

Females should be effective in the role as leaders in a historically male-dominated industry, and the companies and employees can benefit when employees or workgroups perceive female managers as effective.

In addition to being effective, managers should also adapt to the work environment. The environment of a vehicle maintenance department is that of databases, spreadsheets, trucks, machines, and handheld/power tools. Adapting to a new environment can be challenging as it involves changing the way people think and act, but adapting is imperative for enduring success (“Adapt to Change,” 2014). Female leaders in a vehicle maintenance industry should be willing and able to adapt to the atmosphere that is prevalent in an operations support department such as vehicle maintenance.

**Purpose of the Study**

The purpose of this quantitative causal comparative research was to determine whether workgroup proximity explains differences in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups in a vehicle maintenance department. Workgroups are local at headquarters and workgroups are remote at regional locations. The functions of the workgroups range from exempt analysts, engineers, and project managers to nonexempt hourly mechanics and fabricators.

The phenomenon of this study was whether workgroup proximity explains the differences in perception of female leader effectiveness for a nontraditional department. Questionnaires were emailed to members of the vehicle maintenance department who have or
have had experience with a female leader within the department. The questionnaires afforded the respondents the opportunity to reply at their own convenience.

**Research Questions**

The number of females occupying leadership positions has increased in the 21st century (Kessler, 2014). Female leadership positions included nurses, retail sales workers, and office and administrative support managers (Zula, 2014). Females are now looking to lead in areas historically occupied by males. The historical positions occupied by males include mechanics and engineers managers which are labeled as nontraditional occupations for females (Zula, 2014). Nontraditional occupations are occupations with 25 percent or less of one gender. Also, with the declining rate of males and increasing rate of females entering the workforce, a greater need for females pursuing nontraditional occupations will develop as the supply of male workers decline (Zula, 2014). The decline of male workers and increase of female workers can also lead to an increase in the number of female leaders in these nontraditional occupations.

Managers, regardless of gender, are expected to effectively articulate their visions and adapt to change (Chin, 2011). Managers should be authentic, should have a supportive network, and should be able to identify change issues (Chin, 2011). Females, however, may behave differently in a company due to the difference in the total number of female managers as compared to the total number of male managers. When female leaders are underrepresented, female leaders could take on the leadership style of their male counterparts thus preventing female leaders from leading with their style and articulating their own vision (Kessler, 2014). The lack of a leadership style could have an impact on how employees perceive their managers. This underrepresentation could also lead to departments missing out on important opportunities such as pro-social behavior and panorama views (Kessler, 2014). Therefore, the phenomenon of
this study is whether workgroup proximity explains the differences in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups in a vehicle maintenance department. The quantitative causal comparative research method was used to answer the following research question and hypotheses:

RQ1: Does workgroup proximity explain the differences in perception of female leader effectiveness in a nontraditional department?

H1₀: There is not a significant difference in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups in a nontraditional department.

H₁ₐ: There is a significant difference in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups in a nontraditional department.

**Advancing Scientific Knowledge**

Previous research indicates that females are stifled by stereotypical attitudes, good ole boy networks, and the glass ceiling in their attempts to occupy leadership positions (Hill, 2013). Hill’s (2013) research also indicates that females are turning to nontraditional leadership positions which were historically male-dominated positions. Finally, research has been done to determine what makes effective leaders and what employees look for in their leaders (Simon, 2011). The studies were based on leaders in traditional positions where gender was not a factor. However, no studies have been done to indicate how local and remote vehicle maintenance workgroups perceive female leaders’ effectiveness in nontraditional leadership roles and whether workgroup proximity explains the difference in these perceptions.

This research used the **interpretive theory** to understand how vehicle maintenance employees with current or former female-leader experience within the department perceive female leaders. The interpreting process requires three capacities: expressiveness, language
processing, and cognition (Ding, 2014). With expressiveness, the stimulus object is devoid of any characteristic and so the quality has to be produced by the perceiving person (Giorgi, 2011). With language processing, that which is heard is very complex and involves the successful intertwining of auditory, cognitive, and language mechanisms (Giorgi, 2011). Finally, with cognition, aspects like seeing, thinking, reasoning, intentional states, beliefs, wills, and non-conscious states are covered (Serrano, Castillo, & Carretero, 2014). By using the interpreting process, relying on the participants’ expressiveness, language processing, and cognition, the researcher will gain an understanding about the perception of female leadership in nontraditional vehicle maintenance leadership roles.

The interpretive theory can be used to describe employer-employee relationships for nontraditional vehicle maintenance occupations with female leaders. The vehicle maintenance employees with current or former female-leader experience within the vehicle maintenance department defined the current state of the relationships based on their reasoning or beliefs. Finally, the reasoning or beliefs from the participants can be used to determine the differences that exist in terms of workgroup location.

**Significance of the Study**

Leaders, regardless of gender, should be able to improve the skills and capabilities of those being led (Treasurer, 2014). Leaders should recommend or assign high-profile projects for their employees, should include the employees’ perspectives when making decisions, and should provide candid feedback to help close blind spots that limit growth (Treasurer, 2014). Also, effective leaders should be able to articulate their visions, should be able to adapt, should be authentic, should have a supportive network, and should be able to identify change issues (Chin, 2011). In operations support groups, changes occur due to competition, the economy, or
executive decisions. Managers should have the capabilities to adjust to these changes and should ensure their employees have the necessary skills to follow.

A vehicle maintenance department helps support operations, helps keep a fresh fleet of PUDs and GSE, and helps keep maintenance costs down. The department analyzes delivery routes to determine the best assets in terms of cube size and fuel type for each location, engineers assets to meet operations’ needs, finds the correct vendor with price being a major factor, and ensures assets are delivered, inspected, and placed into service prior to the start of operations. Therefore, managers should have the skills and knowledge required to lead the vehicle maintenance groups to ensure no delays.

A 2014 study indicated that the 21st-century organization would benefit from both male and female leadership (Kessler, 2014). However, in a male-dominated industry, females will tend to copy their male counterparts’ leadership styles. Thus, a male-dominated industry can prohibit females from leading with their own styles of management which could alter perceptions of female leaders within male-dominated industries. As Kessler (2014) explains, males should see themselves as males and females should see themselves as females in their respective leadership roles. But, how do the actual employees from the targeted workgroups perceive female leaders and does workgroup location play a role in how the female leaders are perceived? The researcher will use this study to determine whether workgroup proximity explains the difference in the perception of female leaders effectiveness from employees with current or former experience with female leaders within the department.

Females are entering the workforce at a higher percentage than males (Zula, 2014). The declining rate of males and increasing rate of females can result in an increase of females pursuing nontraditional occupations as the supply of male workers declines. Furthermore,
nontraditional occupations for females means higher wages, better benefits, opportunity for advancement, and job satisfaction (Zula, 2014). If the increase in female workers lead to an increase in female managers in nontraditional leadership roles, this study can be used to study the current relationships with employees and female leaders.

**Rationale for Methodology**

This study used the quantitative research methodology. Quantitative research is useful for assigning communication content to categories based on rules (Riff, Lacy, & Fico, 2014). Likewise, quantitative research is helpful when coders must create rules to follow for connecting content with numbers that will represent the level of measurement selected by the researcher (Riff et al., 2014). The phenomenon in this study was whether workgroup proximity explains the differences in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups in a vehicle maintenance department.

Quantitative research methods can be considered problem-solving tools where the problem is in the form of a research question or hypothesis (Baglin, Reece, & Baker, 2015). In addition, quantitative research underpins modern conceptions of statistical thinking where knowledge can be gained through measurement. The methods of quantitative research span the data investigative cycle, connecting hypotheses, data analysis, and conclusions, but are defined by different methods of data collection and research design (Baglin et al., 2015).

**Nature of the Research Design for the Study**

A research design can be described as a framework or guiding plan for collecting and analyzing data (Ahmad, Marwat, & Khan, 2014). Choosing an appropriate research design requires giving careful consideration to the operational feasibility, information to be obtained, and the expected duration of the study and expenses (Ahmad et al., 2014). The two major
categories of research designs are observational (non-interventional) and experimental (interventional) studies. This research study used a quantitative causal comparative non-interventional research design. Causal comparative is appropriate as the workgroups were not randomly selected. Instead, they were selected because of pre-determined criteria. Furthermore, the researcher is seeking to determine the cause of favorable or unfavorable workgroup perceptions.

**Definition of Terms**

**Glass ceiling.** The highest level a professional female can attain in a given professional field without running into an impasse in terms of achieving higher goals (Marina & Fonteneau, 2012).

**Good ole boy networks.** A network generally described as leaders promoting those who are similar to them in terms of gender. An example would be homophily, preference for interacting with similar others, that can compound the effect of female underrepresentation (Rhodes & Butler, 2010).

**Interpretive theory.** A theory that specializes in interpretation and non-literary translation (Zhao, 2014).

**Nontraditional occupations.** Occupations where 25 percent or less of individuals of a particular gender work (Jackson, Perrone-McGovern, & Wright, 2010).

**Panorama views.** A method of managing where opportunities and risks are assessed using an overview perspective (Kessler, 2014).

**Perception.** A relationship between mind and world wherein information about the world is registered in the mind. Perception is a process of registering sensory stimuli as meaningful
experience and provides fundamental category through which knowledge of an objective world is conceived (Homan, 2014).

**Pro-Social behavior.** Discretionary behavior characterized by assisting, comforting, sharing, and cooperating intended to help worthy beneficiaries (Sproull, 2011).

### Assumptions, Limitations, Delimitations

Assumptions can be viewed as the foundation of any proposed research and are accepted as true without concrete proof (Ellis & Levy, 2009). The researcher should explicitly document his/her assumptions ensuring that the assumptions, viewed as givens, are not hidden (Ellis & Levy, 2009). For this study, the following assumptions were made:

- Participants answered all questions truthfully and to the best of their ability. To help ensure truthful responses, the respondents were reassured that confidentiality and anonymity were respected throughout the study.

- The sample population had some experience with female leadership within the department. The respondents currently have or have had a female manager within the vehicle maintenance operations support department.

- The study accurately represented the current female manager/employee relationship. The questionnaire instrument collected data that adequately described the perceptions vehicle maintenance workgroups with current or former female-leader experience have about female leaders.

Limitations, like assumptions, are out of the researcher’s control and are considered potential weaknesses (Ellis & Levy, 2009). The analysis, the nature of self-reporting, the questionnaire instrument, the sample, and the time constraints were all factors that were considered when conducting research. The first limitation was the gender make-up of the
department that was studied. The study was conducted using a male-dominated workforce and how the workforce perceives female leadership. Next, there was a time constraint. The time spent conducting the actual research was considered non-peak months for the operations support department. Non-peak months are not as demanding as peak months when package-delivery volume and PUD usage are increased. Finally, the research focus was on employees who have or have had a female manager within the department, and those without female manager experience were excluded.

Delimitations assist the researcher in understanding the boundaries of the research, and delimitations can influence the external validity or generalizability of the results of a study (Ellis & Levy, 2009). Based on the increase in females selecting nontraditional occupations, it was important to determine the relationship of female managers and employees in these occupations. This study was conducted within an organization in southern United States. Therefore, the perceptions of the female leader-workgroup relationship was described by vehicle maintenance employees based in this specific geographical location with only one exception being the west Preventive/Scheduled Maintenance workgroups. Finally, the researcher used a questionnaire to determine how employees with current or former female-leader experience within the department perceive female leader effectiveness in a vehicle maintenance department.

Summary and Organization of the Remainder of the Study

Nontraditional occupations for females can be defined as those occupations which have less than 25 percent females of the total employed workforce (Zula, 2014). The nontraditional occupations include construction worker, mechanic, and engineer managers. The 2010 statistics indicate that 7.7 percent of engineer managers and 6.3 percent of mechanic managers were females (U.S. Department of Labor, 2010). However, due to the decrease of males entering the
workforce and the influx of females entering the workforce, more of the nontraditional occupations are beginning to be occupied by females (Zula, 2014).

Female leaders bring important opportunities to organizations such as pro-social behavior which entails caring for others, maintaining personal relationships, and taking responsibility for the emotional well-being of others (Kessler, 2014). Female leaders also bring panorama views which can be described as overview perspectives for assessing opportunities and risks (Kessler, 2014). Additionally, female librarians’ belief about management is different than what it was in 1985 when female librarians believed managers should have all of the answers related to the position (Landgraf, 2015). Female Librarians now believe that managers should instead have better situational awareness, a better understanding of how things will impact the organization or employee motivation (Landgraf, 2015).

When there is a shortage of female managers in a department, females leaders will tend to copy the leadership styles of their male counterparts (Kessler, 2014). Increasing female representation can allow female managers to exercise their own leadership style and execute any power base (Kessler, 2014). Therefore, the goal of this quantitative causal comparative research study was to determine whether workgroup proximity explains the differences in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups in a vehicle maintenance department.

Chapter 2 includes an expanded review of current research on nontraditional occupations for females and effective leadership styles that were presented in Chapter 1. Chapter 2 also contains the interpretive theoretical framework that was used to gain an understanding of the female manager-workgroup relationship. Next, chapter 3 includes the methodology, research design, and procedures used in this study. Chapter 3 also includes a review of the topic and
specific research problem for the study. Next, chapter 4 includes the method in which the data were collected, the method in which the data were analyzed, and chapter 4 includes a written and graphical summary of the results. Finally, chapter 5 contains the results associated with the existing body of research related to the dissertation topic.
Chapter 2: Literature Review

Introduction

The purpose of this quantitative causal comparative research study was to determine whether workgroup proximity explains the differences in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups in a vehicle maintenance department. The subjects of this study were employees from Planning/Analysis, Warranty, Innovation/Reliability, and Preventive/Scheduled Maintenance workgroups from a vehicle maintenance department. This chapter will contain the theoretical foundation for the research and the review of literature encompassing employees’ perceptions of female leadership in nontraditional roles.

The number of females entering the workforce has increased, and the number of males entering the workforce has decreased (Zula, 2014). The 2010 labor statistics indicated that the occupations of employed females were registered nurses, elementary and middle school teachers, retail salespersons, customer service representatives, and bookkeeping and accounting clerks (U.S. Department of Labor, 2010). These occupations are considered traditional for females as females account for over 25 percent of the total workforce. The managers of registered nurses, elementary and middle school teachers, retail salespersons, customer service representatives, and bookkeeping and accounting clerk positions are also considered traditional as over 25 percent of the workforce is female. Furthermore, the 2010 labor statistics indicated that 68.7 percent of office and administrative support managers consisted of females (Zula, 2014). However, with the increase of females into the workforce and the decrease of males into the workforce, females may be required to fill the positions occupied by males which are known as nontraditional occupations. Nontraditional occupations for females are occupations which have less than 25
percent females of the total employed workforce (Zula, 2014). Rather than seeking traditional leadership positions where females are faced with stereotypical attitudes, lack of support from executives, and the absence of role models at executive levels, females are turning to nontraditional occupations instead (Hill, 2013).

Nontraditional occupations for females consist of construction workers, science technicians, computer specialists, mechanics, and engineers (Hill, 2013). Construction workers, science technicians, computer specialists, mechanics, and engineers’ managers are also considered nontraditional. The 2010 labor statistics indicated that 7.7 percent of engineers’ managers and 6.3 percent of mechanics’ managers were females (U.S. Department of Labor, 2014). Therefore, an operations support vehicle maintenance department responsible for engineering, testing, and repairing PUDs and GSE and employing females is considered nontraditional.

A review of future nontraditional occupations for women was done to indicate a declining rate of males and increasing rate of females entering the workforce that will contribute to a greater need for females to pursue nontraditional occupations as the supply of male workers decline (Zula, 2014). Research about the progress women have made in the workforce also indicated that stereotypical attitudes, good ole boy networks, and the glass ceiling have led to females turning to nontraditional leadership positions such as engineering, science technicians, and computer specialists (Hill, 2013). However, no studies have been done to indicate whether a difference exist in the perception of female leader effectiveness between remote and local workgroups. This chapter will include a discussion of the rationale for this research and bridge the gap in the literature.
The theoretical foundation used in this study was the interpretive theory. The interpreting process requires three capacities: expressiveness, language processing, and cognition (Ding, 2014). The interpreting process aided the researcher in assessing the perception of female leaders from workgroup employees with current or former female-leader experience within the department by relying on the participants’ expressiveness, language processing, and cognition. Next, the literature review, an overview and analysis of previous literature, will contain a review of the various workgroups within a vehicle maintenance operations support department, effective female leaders, and the various types of leadership styles. The literature will be taken from published body of knowledge such as reviews from peer-reviewed professional journals, theoretical articles, and case studies.

This chapter will begin with the history of interpretive theory, its characteristics, and the actual application of the theory. Next, the chapter will include a detailed review of the literature and will provide the history of leadership, leadership styles, nontraditional occupations, and a breakdown of vehicle maintenance departments. The review of literature, per the methodology, will then be discussed ending with a summary and organization of the remainder of the study.

**Theoretical Foundation**

The interpretive theory was the foundation on which the vehicle maintenance employees’ perceptions of female managers in nontraditional roles were based. The theory was used to determine whether favorable or unfavorable perceptions of female leaders could be determined by workgroup proximity. The theory also seeks to understand situations based on the actual participants, can be used to deal with culture-loaded problems, and is sometimes referred to as the sense-based theory (Li, 2014). Each participant had experience with female leaders within the vehicle maintenance department. Interpretive theory indicates that translation, in every deep
sense, is interpretation (Zhao, 2014). Thus, the translator’s interpretation is based on the original text based on the language symbols and the translator’s own cognitive complements (Zhao, 2014). At the core of interpretive theory is deverbalization, which indicates that interpretation not only involves changing from source language to target language, but also reformulation on the basis of understanding (Ding, 2014). With interpretive theory, two levels of translation exist: linguistic meaning and non-verbal sense (Zhao, 2014). The theory distinguishes between linguistic meaning and non-verbal sense because linguistic meaning of the speaker’s language should not be interpreted and the non-verbal sense should be interpreted (Zhao, 2014).

The two world wars were catalysts to the interpreting theory as the need for communication amongst different countries was prevailing (Qiang, 2013). Thus, the theory has gained popularity with universities as interpreting classes have been introduced into the curriculum for students seeking to become professional interpreters (Qiang, 2013). Interpreting theory has been used in research in the healthcare industry, and it has been used in the courtroom on case-by-case or issue-by-issue by lawyers and judges attempting to resolve legal problems (Bartrum, 2013).

The goal of interpretive theory is to convey the meaning and contents but not the form or the language itself (Zhao, 2014). The theory also allows for consecutive interpreting which involves comprehending, or listening and note-taking, and speech production, or reformulating the meaning (Ding, 2014). Interpretive theory has six teaching strategies: convey the intended meaning of the source language, apply Speech Act Theory in teaching interpreting, make full use of the benefits of deverbalization, prepare fully before interpreting to improve the effect of interpreting, train interpreters’ capabilities, and establish evaluation mechanism (Ding, 2014).
Finally, the interpretive process can be divided into three vital capacities: expressiveness, language processing, and cognition (Ding, 2014).

Expressiveness. In 1949, an important clarifying contribution to the understanding of expression was made (Giorgi, 2011). As no generally accepted definition of the phenomenon of expressiveness existed, Amheim (1949) acknowledged the primordial impression-expression structure by writing the following,

In order to make clear what is meant by expression…it is therefore necessary to indicate (1) the kind of perceptual stimulus which involves the phenomenon in question, and (2) the kind of mental process to which its existence is due (Giorgi, 2011, p. 26).

Psychology depicts the stimulus in physical terms which means the stimulus object is devoid of any characteristic and so the quality has to be produced by the perceiving person (Giorgi, 2011). Furthermore, expressiveness is realized when the work or object is readily perceived as a personal expression of an emotion (Young, 2012). However, a second understanding of expressiveness could be gained by performing an intrinsic analysis of a concrete experience of the perception of an expressive object or situation (Giorgi, 2011). The perception of expressiveness of the auditory stimuli is associated with the expressiveness of body movements (Young, 2012). Consequently, the perception of expressiveness analysis assumes that a psychophysical parallelism exists in the body and mind of a person such that a gentle act is perceivable because of the structural similarity between the processes of the body and the mind of the actor (Giorgi, 2011).

When a person asks about an object in an attempt to perceive expressiveness, he/she is attempting to discover what is given on the part of the object or situation that a certain expressive (or physiognomic) quality is perceived (Giorgi, 2011). The object of an act of consciousness is
palpable or capable of being felt or touched, is tangible, and is easily perceptible (Giorgi, 2011). Also, with expressiveness, the verbal and non-verbal features must be aligned, and they must present themselves in a manner consistent with the object being perceived (Tassia, Gama, & Teixeira, 2016). Finally, self-perception, having an understanding of one’s characteristics, is one of the main motivating aspects for expressiveness (Tassia et al., 2016).

When an object is perceived, the first assumption is that the object could easily be classified as categorical (Giorgi, 2011). Categorical involves shifting the mind from the specifics of an object or situation to the generalizations of those objects or situations. However, categorical level of functioning objects can be complicated. Instead of the straightforward act-object relationships, categorical has act-presencing-object relationships (Giorgi, 2011). Thus, the way a person acts is based on physiognomic perception and not the person him/herself. Conversely, empiricism is straightforward perception. Giorgi (2011) provided an example of a meter reading. If a needle rests on 3 in a scale and 5 observers agree that the needle is on 3, then a result is verified. Although disputes could arise concerning the meaning of the 3, depending on the sophistication of the equipment, the 3 itself would not be in dispute (Giorgi, 2011).

Language processing. The act of processing what is heard, known as language processing, is very complex and involves the successful intertwining of auditory, cognitive, and language mechanisms (Medwetsky, 2011). Language processing is used in every aspect of people lives but is not always used effectively. Furthermore, a spoken language processing disorder exists when a breakdown in any of the language processing mechanisms occurs (Medwetsky, 2011). The breakdown could impact an individual’s ability to effectively process and use the information that is heard (Medwetsky, 2011). Language breakdown can be the result of communication and cognitive problems and can require interventions with specialists (Cook &
Clarke, 2010). Proponents of language processing contend that very little information is gleaned from the acoustic signal and that most language processing, even for processed auditory signals, involves higher linguistic and cognitive knowledge that is applied to incoming acoustic signals (Medwetsky, 2011). Auditory processing can be defined as the deployment of auditory mechanisms responsible for a number of behavioral phenomena, including sound localization and lateralization, auditory discrimination, auditory pattern recognition, temporal aspects of audition, and auditory decrements with competing/degraded acoustic signals (Medwetsky, 2011).

Picture naming can be considered a type of language processing involving 4 stages. First, there must be an activation of conceptual information which is localized to left midsegment of middle temporal gyrus. Next, there must be phonologic word form retrieval, left posterior superior and middle temporal gyri. Third, there must be phonologic encoding, delineation, localized to the left posterior inferior frontal gyrus, and finally, phonetic encoding and articulation which is localized to the primary motor and sensory (Sreeshma & Sudheer, 2016).

Auditory-linguistic integration, described as the ability to combine information from different sensory sources/processing regions into unified percepts, entails processing the segmental aspects of speech as well as its suprasegmental aspects (Medwetsky, 2011). During the integration, both the segmental and suprasegmental aspects are combined using the corpus callosum transfer of information between the hemispheres allowing the individual to process both the words and rhythm of a language (Medwetsky, 2011). Auditory-linguistic integration allows the listener to derive the semantic intent in cases when the meaning of the spoken sentence relies on more than the spoken words (Medwetsky, 2011).

Cognition. Cognition, referred to as the science of thinking, involves aspects such as seeing, thinking, and reasoning, and cognition incorporates intentional states (beliefs and wills)
as well as non-conscious states (Serrano et al., 2014). Herbert Simon and Allen Newell are the parents of the interdisciplinary Cognitive Science as Simon and Newell were the first to offer an explanation for the cognitive phenomenon (Serrano et al., 2014). Simon and Newell proposed the Physical Symbol Systems hypothesis which is symbol manipulation of human thinking (Serrano et al., 2014). The manipulation is the acquisition of a physical input that is mapped into symbols, combined into structures, and manipulated to produce new structures (Serrano et al., 2014). Likewise, the science of thinking is considered by others to include reasoning about models, assumptions, and decisions (Bailey, 2010). Although decisions can be based on data analysis, there are also decisions being made in the absence of data. Finally, statistics has been incorporated into the science of thinking and can be defined as a general, fundamental, and independent mode of reasoning about data, variation, and chance (Bailey, 2010).

Researchers recognize cognition as the act of segmenting and recognizing a perceptual event and grounding (binding) it to a symbol (meaning) (Serrano et al., 2014). Researchers consider cognition as the ability to plan, reason, adapt, and act according to high level motivations or goals using a range of senses including vision and communication (Serrano et al., 2014). According to Serrano et al. (2014), the following questions should be considered when defining cognition:

- First, is cognition inherently human or can cognition be extended to mammals, other animals, or artificial systems?
- Second, is cognition innate or is cognition acquired throughout development?
- Third, is cognition subdivided into different tasks or modules, and how do these modules interact?
- Fourth, what is the function of cognition (i.e. the reason for its existence)?
• Fifth, what is the voluntary character of cognition, and what are the implications of consciousness on cognition?

Serrano (2014) describes cognition as the conscious process of the mind by which one becomes aware of thoughts and perceptions, including all aspects of perceiving, thinking, and remembering (Serrano et al., 2014). Cognition helps when people are trying to determine how they feel about a certain person, place, or thing, and cognition focuses on planning, reasoning, and adapting.

Non-verbal sense. The translator interprets the non-verbal sense of the speaker but not the linguistic meaning of the language when using the interpretive theory (Zhao, 2014). Thus, when an interpreter attempts to develop meaning, the focus should be on the implicit meaning, or the real intention of the speaker, and not the linguistic meaning of the language symbols (Zhao, 2014). In addition, the translation object is the transmission of communicative meanings, and the translators or interpreters should convey the information of the whole discourse but not the discourse itself (Zhao, 2014). Translators or interpreters should avoid trying to memorize the speaker’s words, but instead, attempt to grasp the meaning of the words and reconstruct it with the target language (Zhao, 2014).

Non-verbal resources are becoming significant in communicating and meaning-making as people are exposed to texts that contain elaborate visual images, unusual narrative structures, complex design elements, and unique formats (Liu, 2013). In making sense of the multimodal texts, the readers must be able to ascend the traditional cognitive strategies and improve the readers’ interpretation method in order to effectively read comprehension instructions (Liu, 2013). Images and texts are being combined in unique ways, and readers in 2013 should create or enhance their skills and strategies for developing meaning in transaction with multimodal texts.
when they are encountered during the social practices of interpretations and representation (Liu, 2013).

Non-verbal language represents the first method of communication among individuals (Tafuri, 2013). Body movement and hand gestures can have different meanings in workgroup meetings. One study indicates that 7 percent of a message’s content is given by meaning of the words, 38 percent is given by the tones of the voice, and 55 percent is given by facial expressions and body movements (Tafuri, 2013). Aspects of non-verbal communication can be universal or based on cultures and backgrounds (Tafuri, 2013). For example, pointing is considered to be universal in all cultures, but nodding can be used to indicate no in Greece and a rapid backward movement of the head is a sign of denial in Greece (Tafuri, 2013).

**Review of Literature**

The phenomenon of this study was whether workgroup proximity explains the differences in the perception of female leaders’ effectiveness from employees with current or former experience with female leaders within the department. Other studies have been done to indicate how people perceive female leaders. However, with Scott’s (2014) study, the researcher focused on the perceptions of females leaders in church-related organizations. The study indicated that people’s perceptions of their ideal leader were not the same as their perceptions of an ideal female (Scott, 2014). Incorporating a causal-comparative methodology, the researcher sought to discover whether role incongruity posed obstacles for female leaders (Scott, 2014). The researchers were able to show that role congruity did impede success for females (Scott, 2014). The study also indicated the effectiveness of male and female leaders differed in traditionally masculine environments such as the military (Scott, 2014). In traditional male environments,
females face significant obstacles to succeed as leaders and are largely underrepresented in management positions (Scott, 2014).

A study was also conducted pertaining to the insight into pervasive expectations that influence how females are perceived or how females view themselves when leadership is required (Madden, 2011). The focus of the study was on higher education. The researcher used descriptive studies of gender issues and leadership in education and compared the leadership in education with leadership in other settings (Madden, 2011). The results indicated leadership styles as determinants of effective female leaders (Madden, 2011). The researcher also used an interventional design to study people placed in situations that affected attentiveness (Madden, 2011). The results indicated that overloaded individuals did not focus on gender in analyzing a leader’s effectiveness (Madden, 2011). Conversely, people who paid close attention to their situations adjusted their views of leadership based on a person’s gender (Madden, 2011).

Effective female leaders. Leaders should be able to improve the skills and capabilities of those being led (Treasurer, 2014). Leaders should assign high-profile projects to their employees, leaders should include the employees’ perspectives when making decisions, and leaders should provide candid feedback to help close blind spots that limit growth (Treasurer, 2014). Furthermore, effective leaders should be able to articulate their visions, should be able to adapt, should be authentic, should have a supportive network, and should be able to identify change issues (Chin, 2011).

A group of females were polled to determine what makes a successful female leader. The females from the poll consisted of a former president of a publishing company, chief executive officers of a public relations firm and an international airport, a city councilwoman, a state legislator, and a college president (Simon, 2011). The responses were consistent with what
research indicates matters in leadership (Simon, 2011). Eleven of the characteristics of a female leader are explained in the next section.

**Self-awareness.** Self-awareness stems from the humility of knowing that everything has a shelf-life, and thus, leaders should have continued growth through professional reinvention (Gallagher, 2012). Likewise, leaders should understand what they know and what they do not know (Simon, 2011). Next, leaders should know their strengths, should be honest about their flaws, should not be critical of themselves, and should be willing to fix weaknesses (Simon, 2011). Thus, leaders, through knowledge of their strengths and a foundation built on their strengths, become more confident (Simon, 2011).

**Competence.** Competency emphasizes the personal attributes of individuals for achieving effective job performance. According to Fradmanesh, Ebrahimi, and Taheri (2012), managerial competencies are categorized as follow:

- Establishing Contacts: Share opinions and beliefs with others;
- Team Formation: Allow interference and make teams that have values and goals;
- Team Membership: Work well in teams, divide work, and value others’ opinions;
- Planning: Adjust priorities and schedule work;
- Efficiency: Seek faster ways to do work with less resources;
- Decision Making: Make decisions based on the level of responsibility;
- Customer Concern: Identify customer’s concerns and assure customers receive required services.

Leaders should always be prepared and should only take on projects when capacity allows for a job completed as required (Simon, 2011). Also, listening is considered an important competency (Simon, 2011). Listening allows people to acquire information, allows people to understand,
allows people to learn, and allows people to be entertained. Therefore, leaders should seek out and accept feedback that will help them become more competent at essential business needs (Simon, 2011).

Curiosity. Curiosity is described as being desirous of learning or knowing or being inquisitive (Olson, 2011). Curiosity is a family of human responses that includes interest, fascination, wonder, and awe (Olson, 2011). In order to grow intellectually, morally, socially, and spiritually, people need to ask questions and seek answers (Austin, 2014). A deep and persistent desire to know is at the heart of intellectual curiosity. Moreover, curiosity probes questions in order to peel back layers of explanation to get at the foundational ideas concerning a particular issue (Austin, 2014). Additionally, according to Simon (2011), people do not grow if they do not make room for what is not already part of them. Power can be achieved through curiosity about people, issues, and things, and power can lead to better understandings. Finally, a person who takes a genuine interest in and is curious about other people can make people feel special and can make people likable and memorable (Simon, 2011).

Kindness. Kindness includes self-care and well-being with oneself and focusing on treating others with mutual care and respect (Vincent, 2011). Vincent (2011) states that Canada One, an organization for small business owners, touts a Kindness to Colleagues Program that offers a slide deck filled with ideas and tips on how to be kinder to workers. The ideas and tips include limiting gossip at work, smiling more frequently, or walking a fellow employee to his/her car after hours (Vincent, 2011). The way a person treats another person matters to everyone else, and people determine how trustworthy a person is based on how a person treats others (Simon, 2011). Leaders are also advised to be kind. Leaders should know their employees and constituents, leaders should know their employees’ stories, leaders should know their
employees’ heartbreaks, and leaders should know their employees’ dreams (Simon, 2011). Encouragement is suggested from leaders, and leaders should be unselfish in their praise, in their listening, and in their thoughtfulness (Simon, 2011). Finally, as Simon (2011) points out, although empowering others will cause others to follow, leaders should also remember to be kind to themselves as well. The leaders should ensure that in addition to treating people with kindness, leaders are also receiving kindness in return (Simon, 2011).

**Purposefullness.** Purposefullness includes intentionally demonstrating integrity, honesty, ethics, and consistency every day (Simon, 2011). Leadership is not the rare gift reserved to a few chosen and charismatic unique individuals, but a potential that lies within everyone and is awakened by finding passion and living a purposeful life (Civico, 2014). Also, transformational leaders, grounded in the clarity of purpose and of one’s own values, is key to remaining steady on the chosen path, reaching the desired goal, and being successful (Civico, 2014). People are only as strong as their commitment to their personal mission and purpose in life which are the same for an organization (Simon, 2011). Moreover, leaders should not be afraid to speak their minds but should do so with respect while honoring the differing views of others (Simon, 2011). Employees will respect leaders if the leaders are committed to the employees’ right to disagree with them (Simon, 2011). Next, leaders should be decisive and should acknowledge the fact that indecision is worse than making a bad decision which can usually be fixed (Simon, 2011). Finally, leaders should be accountable for all they do, and leaders should be transparent with the old warning, “Would you want to see this reported on the front page of the newspaper?” being the cornerstone of reporting (Simon, 2011).

**Resilience.** Resilience involves managing negative thoughts when faced with difficult situations, thoughts, and emotions (Mirea, 2013). Leaders will be misunderstood, will have their
ideas rejected, and will be attacked, but leaders should hold their heads up and keep going instead of taking misunderstandings, rejections, and attacks personally (Simon, 2011). Also, leaders should ask whether the criticism is justified or unjustified. If the criticism is justified, leaders should acknowledge and try to address the criticism (Simon, 2011). If the criticism is unjustified, leaders should shake it off and recognize that leaders will not make everyone happy (Simon, 2011). The author used Hilary Clinton as an example. Although she has been knocked down personally and publicly, Hilary always gets back on her feet which has led to her contributing in ways that could never be possible otherwise (Simon, 2011).

**Optimism.** Optimism involves focusing on the best possible outcome for a situation. Optimism is still considered a better guide to action in bad time than despair, lethargy, and what psychiatrists have defined as abulia (absence of will) (Laqueur, 2013). Optimism, per a growing body of scientific evidence, is also thought to be hardwired to the human brain (Laqueur, 2013). Simon (2011) explains that optimistic people live considerably longer, are subject to make more money in their lifetimes, enjoy better health, have more success with marriages and family lives, and have higher educational attainment with all other constants being equal. However, an optimistic nature does not mean being foolish or naively cheerful in the face of crisis. Rather, it means understanding the negatives but trying to refocus on the positives (Simon, 2011). Finally, a leader’s thoughts and expectations can be powerful and contagious and can give people energy to face difficult tasks (Simon, 2011).

**Connections.** Connections involve surrounding oneself with smart, talented people who will be honest (Simon, 2011). The relationships should be nurtured as the relationships are the machinery of how everything good gets done (Simon, 2011). Also, leaders should find a respectful mentor, get to know people in diverse networks, and be open, inclusive, and tolerant
of differing views that can provide knowledge, new perspectives, and solutions (Simon, 2011). Once leaders form these relationships, leaders should maintain the relationships. Relationships can be established and sustained through technologies such as email, online chat, and other social media tools (Veron, 2011). The tools afford leaders the opportunity to be open, transparent, and authentic with their connections (Veron, 2011). The author used the embassy in Jakarta, Indonesia as an example. The Jakarta embassy has a Facebook page and almost 200,000 followers. The page explains America’s policies, what’s happening, and Jakarta’s engagement with people (Veron, 2011).

**Knowledge and practice of teamwork.** Teamwork involves a group of employees working together to achieve sustainable results. Becker (2015) uses The Five Behaviors of a Cohesive Team model to describe effective teamwork. Teams are able to comprehend where they fall within the following five distinct pillars: trust, conflict, commitment, accountability, and results. The pillars help team members and leaders understand how unique group dynamic can work together and how team members and leaders can establish a neutral language that helps participants have productive conversations. Also, with these pillars used as a foundation, teams are able to communicate and standardize expectations to improve accountability, strengthen leadership abilities, and create an emotionally intelligent culture (Becker, 2015). Finally, solutions and ideas involving a team are exponentially better by a group as opposed to an individual (Simon, 2011).

**Presence.** Presence involves focusing on today and letting go of worrying about the future (Simon, 2011). If nothing can be done about a situation, leaders should stop worrying about the situation because it robs leaders of productive energy (Simon, 2011). Likewise, leaders should also let go of past regrets if nothing can be done about the regrets (Simon, 2011). Leaders
should instead focus on what leaders can do today to carry out the change that leaders want to see in the world (Simon, 2011). Also, by being fully present wherever leaders are and putting down the electronic devices while in meetings, leaders can be fully engaged in what is in front of them, and the people will not lose respect for the leaders (Simon, 2011).

**Passion.** Passion involves having enthusiasm, energy, and a sense of joy (Simon, 2011). Leaders with passion can do more for the world and are more successful than their peers who lack these qualities (Simon, 2011). Leaders with passion should have an inspired vision of what can be and share it with others (Simon, 2011). One such leader, Bill McLawhon, executive coach at Facebook, has passion about the young leaders of the global leadership development program that McLawhon coaches (Livermore, 2013). McLawhon speaks with wisdom and enthusiasm about what he is learning from the young leaders who are passionate about their revolutionary approaches, and McLawhon asserts that other Facebook leaders could learn from the young leaders (Livermore, 2013).

People start to find their passion by asking themselves what they want to do with their lives (Greenawald, 2015). To fine-tune passion, people must start to ask why. According to Greenawald, the following questions help to form the why:

- What burning question never quite leaves the back of one’s mind?
- What problems does one consistently see in the world that leads him or her to believe a fix should be developed?
- What topics does one find him/herself gravitating toward when reading the news?
- What topics of conversation make one’s heart beat a little faster when talking to other people?
- What about the world makes one mad?
What purpose does one think flows through his or her veins?

Leadership styles. Leadership is defined as the interpersonal influence exerted in a situation and directed using a communication system aimed at attaining specific goals (Limbare, 2012). A leadership style is defined as the method in which influence is exerted and the communication system that is used. Leadership styles can increase the efficiency, effectiveness, and productivity of organizations (Afghan & Poor, 2014). The leadership style can affect every aspect of the organization and can vary according to the leader, the employees, or the company (Giri & Santra, 2010). Transformational, transactional, and laissez-faire are 3 leadership styles that have been studied in the context of organizational effectiveness (Giri & Santra, 2010).

Transformational leadership. Transformational leaders work to create change and to cause transformation (Afghan & Poor, 2014). Transformational leaders direct their employees to better themselves, encourage their employees to act beyond expected limits, and the employers and employees promote one another in terms of morality and motivation (Afghan & Poor, 2014). Developmental processes used to encourage the subordinates are comprised of empowerment, the achievement of higher levels in the hierarchy of needs, improvement in the level of motivation, and the development and promotion of ethics (Afghan & Poor, 2014). Also, empirical studies indicate that a significant positive correlation exists between transformational leadership and organizational performance as well as transformation leadership and employee commitment, low levels of job stress, job satisfaction, satisfaction with the leader, creativity and emotional intelligence (Afghan & Poor, 2014).

Transformational leaders widen and change the interest of followers and generate awareness and recognition of the purpose and mission of the group (Giri & Santra, 2010). Transformational leaders motivate followers by using charisma or idealized influence,
inspirational leadership or motivation, intellectual stimulation, and individualized consideration (Giri & Santra, 2010). Idealized influence is realized when leaders act as role models for their subordinates, and inspirational motivation is displayed when transformational leaders create inspiration and motivation for their employees (Giri & Santra, 2010). Inspiration occurs by providing meaning to the employees’ work and challenging employees when appropriate (Giri & Santra, 2010). Furthermore, intellectual stimulation is displayed when transformational leaders, through actions, encourage followers to be innovative and creative by questioning assumptions, reframing problems, and finding new ways to approach old situations (Giri & Santra, 2010). Finally, individualized consideration allows for new learning opportunities created with a supportive environment (Giri & Santra, 2010).

*Transactional leadership.* Transactional leaders reward or discipline followers depending on the adequacy of the followers’ performance (Giri & Santra, 2010). Transactional, or interactional, leaders reiterate and clarify the performance criteria and what is expected of the subordinates when a job or job environment is unsuccessful in creating necessary incentives and satisfaction (Afghan & Poor, 2014). With transactional leadership, employees are encouraged to perform as expected which is the opposite of transformational (Afghan & Poor, 2014). Also, a transactional leadership style includes a sequence of contractual associations and exchanges of stimuli and rewards between leaders and subordinates, and the transactional leader acts in the present environment and prefers an efficient and predictable employee as opposed to a creative employee (Afghan & Poor, 2014).

Although contingent and occasional rewards may lead to the increased effectiveness of leaders, studies indicate that traits of this transactional leadership have no positive impact on productivity (Afghan & Poor, 2014). Transactional leaders also reward or discipline followers
based on contingent reinforcement, either positive contingent reward or the negative active management-by-exception and passive management-by-exception (Giri & Santra, 2010). Contingent reward allows the leader to assign or receive agreement from the employees on what needs to be done and promises rewards in exchange for adequately completing the tasks (Giri & Santra, 2010). With active management-by-exception, the leader actively monitors errors, inaccuracies, or deviations from the standards and takes corrective action as necessary (Giri & Santra, 2010). Conversely, with passive management-by-exception, the leader awaits errors, inaccuracies or deviations to occur prior to taking corrective actions (Giri & Santra, 2010). Therefore, transactional leaders seek compliance from their subordinates and clearly state the outcomes of the interactions (Giri & Santra, 2010).

**Laissez-faire leadership.** Laissez-faire leaders display an absence of behavior where decisions are not made, actions are delayed, and authority is not utilized (Giri & Santra, 2010). Laissez-faire leadership is characterized as the avoidance of leadership and is inactive as well as ineffective when compared to transformational and transactional styles of leadership (Giri & Santra, 2010). Known as a delegative style of management, laissez-faire leadership allows the leader to delegate decision making to an individual or group (Ejimabo, 2015). Delegation leads to a negative connotation for laissez-faire management unless the leader is surrounded by motivated, skilled, and talented employees (Ejimabo, 2015).

Laissez-faire leadership represents passive leaders who are opposed to stimulating their followers or providing followers with focus. (Ejimabo, 2015). Thus, followers fail because laissez-faire managers offer no positive or negative direction nor do laissez-faire managers interfere at any time (Ejimabo, 2015). With laissez-faire leadership, employees assume decision-making responsibilities and assume more power and influence (Ejimabo, 2015). Laissez-faire
leaders avoid goal-setting opportunities, fail to establish organizational objectives, ignore duties, and avoid making business decisions (Ejimabo, 2015).

**Nontraditional occupations for females.** Occupational choices have traditionally been characterized by gender segregation where males and females enter professions dominated by their own gender (Jackson & Perrone-McGovern, 2010). Although the gender segregation trend continues to dominate the occupational landscape, males and females are making nontraditional career choices also. Nontraditional occupations are those where 25 percent or less of individuals of a particular gender work (Jackson & Perrone-McGovern, 2010). Nontraditional occupations for females include occupations such as financial analysts, computer programmers, and software engineers which were historically occupied by males (Zula, 2014).

The leading occupations for employed females consist of secretaries and administrative assistants, registered nurses, elementary and middle school teachers, maids and housekeeping cleaners, receptionists and information clerks, childcare workers, and bookkeeping, accounting, and auditing clerks (Zula, 2014) (Figure 1).
Conversely, the occupations with the fewest number of employed females are computer software engineers, industrial engineers, aircraft mechanics and service technicians, and computer control programmers. Engineers, mechanics, transportation workers, and production and operating workers’ managers are also occupations with the fewest number of employed females (Zula, 2014) (Figure 2).
Figure 2. Occupations with the fewest female employees

Females pursuing careers in nontraditional occupations should be prepared to develop emotional controls such as stress management, anxiety management, conflict resolution techniques, relaxation techniques, and methods to deal with discrimination and harassment (Zula, 2014). Sheryl Sandberg, chief operating officer of Facebook, has publicly acknowledged that females face real obstacles in the professional world (Seton, 2013). Females face blatant and subtle sexism, discrimination, and sexual harassment although many of the females are afraid to admit the sexism, discrimination, and harassment publicly (Seton, 2013). Workplace learning and performance (WLP) and human resource management professionals offer females in these nontraditional occupations job- and life-skill classes which help females work on assertiveness, success management, and developing networks (Zula, 2014).

The number of working females in the United States has steadily increased between 1920 and 2010 to 48 percent of the labor force (Zula, 2014). Furthermore, between 1920 and 2010, the percentage of males in the workforce declined to 52 percent. Although a reduction of females
entering the workforce occurred after the 2008 recession, females continued to enter the workforce at a 6 percent higher rate than males. The declining rate of males and increasing rate of females will lead to a greater need for females to pursue nontraditional occupations as the supply of male workers decline (Zula, 2014).

**Vehicle maintenance/operations support.** A vehicle maintenance department is tasked with analyzing maintenance costs, vehicle out of service percentages, correct cube sizes for delivery routes, and efficient fuel types for pickup and delivery (PUD) vehicles and ground support equipment (GSE) in the fleet. The department uses these analyses to engineer assets to meet operations’ needs and to source vendors to build the assets using cost, reputation, and capacity criteria as contributing factors. After the assets are built, the vehicle maintenance department inspects the assets to ensure the assets are manufactured based on engineering specifications, ensures the assets are moved to the pre-determined locations, and ensures the assets are placed into service. Finally, the vehicle maintenance department is tasked with performing scheduled and preventive maintenance of the PUDs and GSE and the timely repairs of the PUDs and GSE to avoid out of service delays.

**Asset Management.** Asset management’s main focus should be on delivering business value instead of managing assets (O'Hanlon, 2014). Instead of focusing on the asset itself, asset management focuses on the tangible, intangible, financial, or nonfinancial value the asset can provide to the organization which is determined by the organization and the organizational objectives (O'Hanlon, 2014). Thus, asset management can be considered as a coordinated set of activities designed to deliver the value consistent with the organizational objections (O'Hanlon, 2014).
With fleet asset management, the manager should understand the asset mix and establish an enterprise-wide mindset as it pertains to fleet optimization (“Lift Truck Fleet,” 2011). Shifting assets from site to site where practical to balance equipment utilization will improve uptime, help to compress maintenance spend, and ensure optimized value and usefulness of the asset for its full economic life (“Lift Truck Fleet,” 2011). The asset manager should also implement a sound replacement program aimed at identifying the specific break-even point or where the maintenance costs of the asset exceed the ownership costs (“Lift Truck Fleet,” 2011). Factors driving the decision to replace a vehicle are severity of the application, rate of usage, type of truck, and type of maintenance it receives (“Lift Truck Fleet,” 2011). Next, asset managers should have good baseline data to understand real maintenance costs at the asset level which can enable the asset manager to set specific goals for cost reduction. Finally, asset managers should never fail to notice avoidable damage associated with operator abuse (“Lift Truck Fleet,” 2011).

**Engineering.** Engineers affect every aspect of human existence (Rockwell, 2012). Engineers created seafaring vessels, trains, planes, automobiles, rockets, and spacecraft to take astronauts into outer space (Rockwell, 2012). A vehicle maintenance department’s engineers are responsible for creating the correct pick-up and delivery (PUD) vehicles and the ground support equipment (GSE) for a package-delivery service company. Engineers also ensure PUD and GSE specifications are appropriate for the location routes.

The engineers for a vehicle maintenance department issue campaign directives, asset modifications, and engineering specification change notifications (ESCN). Campaign directives relay critical information regarding asset condition to technicians and fleet managers, and asset modifications ensure the safety of the operators and minimize liability exposure (“Global Vehicles Manual,” 2015). Alterations to an asset from the original equipment manufacturer
(OEM), deviation to maintenance procedures, or testing of any components or devices designated as critical or safety-related must be approved in writing by vehicle maintenance engineers. Finally, an ESCN lists specification changes that may impact a contract-negotiated price, and it documents changes made to a specification during the procurement or production process (“Global Vehicles Manual,” 2015).

**Warranty.** A warranty can be described as a mechanism used by manufacturers or vendors to share the risks associated with the uncertainty of the product performance with the customers (Christozov, Chukova, & Mateev, 2010). Warranty is considered a product’s attribute and is used as a competing tool on the marketplace and positively impacts the producers’ profit (Christozov et al., 2010). A vehicle maintenance department’s warranty workgroup is charged with processing warranty claims for the entire fleet to ensure the processing procedure is done properly and on a consistent basis. A claim can be for a warranty of malfunctioning, where a product fails to perform the functions as specified in the description, or a claim can be for a warranty of misinforming, where the failure is in the communication process during the course of the sale (Christozov et al., 2010). The warranty workgroup also ensures the warranty payments are applied to the correct cost centers, and the warranty charge-backs are debited to the correct cost centers (“Global Vehicles Manual,” 2015).

**Preventive/Scheduled Maintenance.** The preventive or scheduled maintenance department is responsible for the maintenance and repair of the vehicles and GSE. The preventive or scheduled maintenance department ensures the assets are inspected at scheduled intervals and repaired when unexpected break-downs occur. The normal annual preventive maintenance tasks for the vehicles and GSE include oil changes and tune-ups as stated by the manufacturer and maintenance and safety issues performed as needed such as wiper or headlight
bulb replacement (Credle & Maheshwari, 2010). The preventive or scheduled maintenance department is also tasked with repairing catastrophic failures where the assets are out of commission with estimated repair costs exceeding $5,000.00 (Credle & Maheshwari, 2010). Likewise, the preventive or scheduled maintenance workgroup reduces the risk of equipment failure by using an actual preventive maintenance (PM) schedule to pull vehicles and GSE from service for needed inspections, maintenance, and repairs (“Global Vehicles Manual,” 2015). The schedules are set based on the engineers’ specifications and are initiated at the time the assets are placed into service.

**Planning & Analysis/Innovation & Reliability.** Planning and analysis is charged with providing analytical views of the fleet that are used in asset decision-making such as retirements, replacements, and purchases. Planning and analysis also develops, submits, and manages the capital budget for the department which is used to purchase the incremental and replacement assets. Finally, the planning and analysis workgroup analyzes and purchases the non-revenue security, properties, aircraft maintenance, and executive officers’ vehicles on a global scale.

Innovation and reliability works to move the department forward with the advancements in technology. Innovation and reliability seeks to reduce the fleet fuel consumption by researching alternative fuel programs as well as electric vehicles. The innovation and reliability group also uses tools available through Quality Driven Management (QDM) to improve customer service for all workgroups within the department as half of the individual contributors are QDM experts.

**Methodology**

A shaky research methodology can result in producing unusable findings and unhappy clients (Arora, 2011). Therefore, a sound research methodology should be in the best interest of
the researcher, and the researcher should follow a sequential and structured design path (Arora, 2011). The three methods of research are quantitative, qualitative, and mixed methods.

Quantitative research is the preferred method when a need for precise measurement, replicability, prediction, and control exists (Coates, 2011). Quantitative research allows the researcher the ability to eliminate biases, to remain emotionally detached, and to remain uninvolved with the study objects (Terrell, 2012). In addition, the participants can be randomly selected or assigned to different groups where all variables can be controlled and the relationships can be measured. Next, the variables can be measured on instruments where numbered data can be analyzed using statistical procedures (Creswell, 2013). When a researcher attempts to identify factors that influence an outcome, understand the utility of an intervention, or identify predictors of outcomes, the quantitative research method should be the choice. (Creswell, 2013). Quantitative research is also used when a theory needs testing (Creswell, 2013). Finally, postpositivism, comprising determination, reductionism, empirical observation and measurement, and theory verification, represents the quantitative research method and is considered the traditional form of research (Creswell, 2013). Postpositivists identify and assess reasons that influence outcomes as researchers do when conducting experiments (Creswell, 2013). For example, Scott (2014) used a causal-comparative quantitative study to assess individual perceptions of female leaders in church-related organizations. Scott used descriptive surveys which minimized the risk inherent in self-report and were generalized to a larger population. The descriptive surveys also produced accurate results, and reduced the time and cost of sampling respondents (Scott, 2014). The results indicated that role congruity impedes success for females (Scott, 2014). The study also indicated that differences in the effectiveness of male
and female leaders occurred in traditionally masculine environments such as the military (Scott, 2014).

Researchers using the qualitative research method uses a systematic, non-probability sampling strategy aimed at identifying specific groups of people who either possess characteristics or live in circumstances that relate to the social phenomenon being studied (Isaacs, 2014). Qualitative research is the preferred method when the researcher focuses on complex issues such as human behavior and felt needs (Isaacs, 2014). Users of the qualitative research method also attempt to understand social phenomena by using the help of views and experiences of the participants (Isaacs, 2014). Furthermore, the worldview associated with qualitative research is the social constructivist view. Social constructivism, often combined with interpretivism, indicates that individuals seek understanding of the world and develop subjective meanings of individual experiences (Creswell, 2013). Users of the qualitative research method, thus, rely on the participants being studied. Madden (2011) used qualitative research to determine whether gender stereotypes of leaders influence leadership in higher education. Madden used interviews with female administrators and observations of administrators to assess their perception of equity and equal treatment of female leaders (administrators). The results indicated that female leaders had different propensities for leadership style.

With mixed-method research, a combination of quantitative and qualitative methods are incorporated. It affords the researcher the opportunity to use many design choices which can involve a range of sequential and concurrent strategies (Terrell, 2012). Mixed-method research uses distinct designs and can include philosophical assumptions and theoretical frameworks (Terrell, 2012). Popularity with this method has increased as industries such as health and healthcare are seeking to answer complex questions that cannot be answered with a stand-alone
method (Keptner, 2011). Furthermore, researchers using the mixed-method research method follow the pragmatic worldview. Pragmatism arises out of actions, situations, and consequences instead of focusing on antecedent conditions, and pragmatism encompasses all methods available to understand problems (Creswell, 2013). Proponents of this worldview agree that research should occur in social, historical, and political contexts that can open the door to multiple methods, diverse worldviews, and myriads of assumptions (Creswell, 2013). Black (2010) used mixed-method research to determine the extent servant leadership was linked with perceptions of school climate and to identify whether a relationship existed between principals’ and teachers’ perceived practice of servant leadership and of school climate \((N = 231)\). Black used two quantitative instruments, Laub’s Organizational Leadership Assessment (LOA) and Hoy, Tarter, and Kottkamp’s Organizational Climate Description Questionnaire-Revised (OCDQ-RE) to reveal a substantial positive correlation existed between servant leadership and school climate (Black, 2010).

**Research Design**

The types of research designs available for researchers have grown with the advancements in technology (Creswell, 2013). Technology has increased the number of design methods, and it has advanced the manners in which the data are analyzed. Researchers use case studies to develop in-depth analysis of programs, events, activities, processes or individuals (Creswell, 2013). Also, researchers use descriptive study designs to generalize the sample results to a larger target population (Omair, 2015). The descriptive study designs can either be interventional or observational depending on the researcher’s intent. If the researcher’s aim is to conduct actual experiments to evaluate results, the design could be interventional. Conversely, if
the aim is to assess participants’ views of situations, the design could be observational (Omair, 2015).

**Instrumentation**

To gather the data required to assess the participants’ perceptions of female leadership in nontraditional vehicle maintenance leadership roles, the researcher created an instrument and submitted it to the participants. Questionnaires allow participants to reply at their own convenience and decrease the chances of bias in the way open-ended questions are asked (Bucy & Holbert, 2014). Questionnaires submitted online have the capability of enhancing the accuracy of the results (Bucy & Holbert, 2014). Progress indicators used at the top of each page of a questionnaire can be used to provide the participants with information about the length of the questionnaire and the amount of time it can take to complete the questionnaire (Bucy & Holbert, 2014). Additionally, directions and error messages for the participants could be used to make the questions as clear as possible and reduce drop-outs (Bucy & Holbert, 2014). Next, due to the likelihood of response order effects encountered with mail surveys, questionnaires submitted online can utilize randomization of response options and questionnaires submitted online can prevent context effects. Finally, although the researcher has less issues with space and time by using an online questionnaire, the researcher should avoid asking every question possible and should consider incorporating graphics and images to aid the respondents’ understanding of the research questions (Bucy & Holbert, 2014). The participants are all vehicles maintenance employees who have or have had female-leader experience within the department. Therefore, the researcher used the questionnaires as formative assessments and feedback received from the most appropriate resources because the data are only as reliable as the people delivering the information (Brown & McNeal, 2013).
Summary

Prior research has been done to determine how female leaders are perceived. One study indicated that females in church-related organizations have had their success halted by the perception of female leaders (Scott, 2014). Another study indicated that leadership styles have proven to be determinants of effective female leaders (Madden, 2011). However, no studies have revealed how the workers in nontraditional operations support occupations perceive female leaders.

This study was conducted using the interpretive theory as the foundation. Interpretive theory affords the researcher the opportunity to understand a phenomenon based on the actual participants. Expressiveness, language processing, and cognition are the three capacities for the interpreting process (Ding, 2014). Furthermore, the research will use a causal comparative research design that will be based on actual vehicle maintenance participants with current or former female-leader experience within the department. The study was used to determine how vehicle maintenance employees with current or former female-leader experience within the department perceive female leaders’ effectiveness in their nontraditional operations support vehicle maintenance leadership roles.

The number of males entering the workforce is declining and the number of females entering the workforce is increasing (Zula, 2014). The increase can lead to more females occupying leadership positions in nontraditional occupations. A group of female leaders provided eleven important characteristics of effective female leaders. These characteristics include self-awareness, competency, curiosity, kindness, purposefulness, resiliency, optimism, connections, teamwork, presence, and passion (Simon, 2014). Furthermore, managers should
adapt an effective leadership style for their direct reports. Three leadership styles discussed in this study are transformational, transactional, and laissez-faire.

Studies indicate that traditional occupations for females include secretaries and administrative assistants, nurses, and receptionists. Conversely, nontraditional occupations for females include computer software engineers, programmers, and mechanics (U.S. Department of Labor, 2010). The occupations within a vehicle maintenance department, also considered nontraditional for females, include analysts, fleet advisors, engineers, and warranty administrators.

Chapter 2 contains a discussion of the theoretical foundation as well as discussions of leadership, nontraditional occupations, and research methods and designs. Chapter 3 will contain a review of the quantitative causal comparative research method used in the study, the sample population, and the survey instruments to be used. It will also contain the data source used in the research, limitations of the research, and the manners in which the data were collected. Finally, chapter 3 will contain the manner in which the data were analyzed.
Chapter 3: Methodology

Introduction

The researcher submitted questionnaires to selected workgroups to gauge the employees’ opinions of female manager support, communication, and decision making. The interpretive theory was incorporated in the study to understand the perceptions collected from the questionnaire consisting of Likert-style questions. The results were gathered and analyzed using Microsoft Excel and SPSS software.

The vehicle maintenance department workgroups used in this study are either local or remote based on their functions, and the workgroups consist of Warranty, Innovation/Reliability, Planning/Analysis, and Preventive/Scheduled Maintenance. The occupations for these workgroups consist of engineers and mechanics (technicians) which are considered nontraditional for females. Likewise, the managers of engineers and mechanics are also considered nontraditional (Zula, 2014). It was unknown whether workgroup proximity explains differences in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups in a vehicle maintenance department. Thus, the research question was designed to determine whether workgroup proximity explains the differences in perception for local and remote workgroups.

The chapter contains an overview of nontraditional occupations and female leaders. The overview is followed by an analysis of the research questions, descriptions of the phenomena being studied, and explanations of data sources. The research methodology and research design are then discussed which explain the rationale for the method as well as rationale for the study design. Next, chapter 3 contains a description of the population and sample, data validity,
reliability, and collection procedures followed by the ethical considerations of the study, limitations, and summary of the chapter.

**Statement of the Problem**

It was not known whether workgroup proximity explains differences in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups in a vehicle maintenance department. The targeted employees have had female-leader experience within the department from workgroups including Planning and Analysis, Warranty, Innovation and Reliability, and Preventive/Scheduled Maintenance. The employees have the responsibility of ensuring the PUDs and GSE are cared for properly, are replaced when analyses show the age, utilization, and maintenance costs have exceeded set limits, and are manufactured based on operations’ needs.

Managers lead vehicle maintenance employees and are held accountable for any disruptions in operations due to inoperable or shortage of PUDs or GSE. Managers also serve as substitutes in the absence of the employees, and managers should serve as problem solvers. Moreover, managers should be able to inspire and motivate others to create purposeful and fulfilling workplaces (Warburton, 2015). Thus, females should be effective in their role as leaders in a historically male-dominated industry.

**Research Question and Hypothesis**

The 21st century indicates there has been an increase in the number of females occupying leadership positions (Kessler, 2014). Females in the 21st century are looking to lead in nontraditional areas historically occupied by males (Zula, 2014). Also, with the declining rate of males and increasing rate of females entering the workforce, a need for females pursuing nontraditional occupations exists as the supply of male workers declines (Zula, 2014). The
phenomenon, therefore, of this study was whether workgroup proximity explains the differences in the perception of female leaders from employees with current or former experience with female leaders within the department.

The quantitative causal comparative research method was used for this research to answer the following research questions and hypotheses:

RQ1: Does workgroup proximity explain the differences in perception of female leader effectiveness for a nontraditional department?

H1\(0\): There is not a significant difference in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups for a nontraditional department.

H1\(A\): There is a significant difference in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups for a nontraditional department.

Data were collected using questionnaires emailed to members of the vehicle maintenance workgroups who currently have or have had a female manager within the department. The workgroups included Planning and Analysis, Innovation and Reliability, Warranty, and Preventive/Scheduled Maintenance. The questionnaires afforded the respondents the opportunity to reply at the respondents own convenience. A quantitative research method was used in this study because it is a systematic means of assigning communication content to categories based on rules (Riff et al., 2014). Quantitative research also analyzes relationships involving categories using statistical methods. If the collected data identify patterns or characteristics and are considered sound, the study results can be considered valid (Riff et al., 2014).

**Research Methodology**

This study was conducted using the quantitative research methodology. Quantitative research is helpful when coders must create rules to follow for connecting content with numbers.
that will represent the level of measurement selected by the researcher (Riff et al., 2014). For this study, the researcher questioned vehicle maintenance employees with current or former female-manager experience. The questionnaire was emailed to a total of 29 employees which collected information pertaining to the employees’ perceptions of female managers’ ability to improve the skills of their workers, how well female managers treat the employees, how well female managers make decisions, and how well female managers lead. Finally, quantitative research was selected because of reductionist capabilities. With reductionist, the focus is on sampling and operational or measurement procedures that reduce communication phenomena to manageable data where inferences can be drawn about the phenomena (Riff et al., 2014).

**Research Design**

A research design can be described as a framework or guiding plan for collecting and analyzing data (Ahmad et al., 2014). To determine the best research design, the researcher considered the operational feasibility, information to be obtained, and the expected duration of the study and expenses (Ahmad et al., 2014). The researcher then determined that the study would compare groups on various characteristics such as sex and race with the focus on the strength and direction of relationships between these characteristics (Mertens, 2014). Thus, a quantitative causal comparative research design was used to make group comparisons.

The causal comparative research design affords the researcher the opportunity to explore similarities and differences across comparable cases by pooling similar cases and comparing them as configurations (Ragin, 2014). These cases may have opposite effects depending on context which assumes that outcomes can be due to different combinations or intersections of influence factors or different points of temporal impact (Ragin, 2014). Finally, the quantitative causal comparative research design was used in this study because the researcher was attempting
to determine why the difference existed in the two groups, local and remote vehicle maintenance workgroups.

Managers in nontraditional departments have historically been males. (Zula, 2014) However, considering females are leading workgroups within vehicle maintenance departments, which are also considered nontraditional, understanding how employees with current or former female-leader experience within the department perceive female leaders can benefit the industry. Thus, the researcher used a quantitative causal comparative research design to determine whether workgroup proximity explains the differences in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups in a vehicle maintenance department. The questionnaires allowed the respondents the opportunity to describe, compare, or explain their individual and societal knowledge, feelings, values, preferences, and behavior (Fink, 2012). The researcher used Likert-Scale questions to determine vehicle maintenance employees with current or former female-leader experience impressions of female managers’ support in developing employees professionally, whether female managers aided in improving their employees skills, and whether female managers shared their opinions and beliefs about the department. Finally, the researcher used the questionnaire to determine the degree to which female managers identified and satisfied customers’ concerns, the degree to which female managers showed their own leadership style, and the degree to which female managers showed enthusiasm about their position.

The Likert scale ranged from 1 to 5, with 1 determining whether the employees strongly disagreed with the statement and 5 determining whether the employees strongly agreed with a statement. After the questionnaires were returned, the researcher used Microsoft Excel to arrange the questions. The results were added to a spreadsheet with the sum of the responses ranked from
The researcher then tested the reliability of the research instrument, conducted a factor analysis to describe variability among the observed factors, and performed ANOVA tests to analyze differences between group means.

**Population and Sample Selection**

A vehicle maintenance department consisting of engineers and mechanic technicians has historically been a male-dominated department (Zula, 2014). Although females are entering the workforce and occupying nontraditional occupations, the make-up of the vehicle maintenance operations support department is predominantly male. The population of the study was the entire vehicle maintenance department, which consisted of 2,263 employees; of that total, there were 127 managers, 8 senior managers, 3 managing directors, and a vice president. The headquarters workgroups in southern United States include Planning and Analysis, Asset Management, Engineering, Training, Warranty, and Sourcing workgroups consisting of a manager and an average of 5 individual contributors. In addition, there are 6 regional (West, Midwest, Southwest, South, Atlantic Coast, Eastern) Scheduled/Preventive Maintenance workgroups led by 6 senior managers spread across the country with each region containing an average of 20 district fleet managers. Each of the district fleet managers employs an average of 20 technicians. The study population included vehicle maintenance workgroups who currently have or have had females as managers within the department.

The researcher considered three items when selecting the sample size: avoiding Type I errors, avoiding Type II errors, and an estimated effect size. A Type I error occurs when a researcher incorrectly rejects the null hypothesis (Cohen, 1988). The researcher chose a significant level of .05 to ensure a high confidence was assured to avoid a Type I error. A Type II error can occur when a researcher rejects the null hypothesis in error (Cohen, 1998). For this
study, the researcher chose a statistical power of .80; the minimum statistically associated with social science research (Cohen, 1998; Cooper & Garson, 2016). Since this was a new survey instrument, the researcher decided to identify a large effect size ($r = .50$). Using G*Power (Faul, Erdfelder, Buchner, & Lang, 2009; Faul, Erdfelder, Lang, & Bucher, 2007), a sample size of 26 was determined (Figure 3).

![G*Power 3.1.9.2](image)

Figure 3. Sample Size as determined by G*Power
The vehicle maintenance department consists of workgroups designed to analyze, engineer, purchase, and repair PUDs and GSE. The participants for the study were selected based on their involvement with a female manager within the department. The survey instrument (Appendix A) was sent to a total of 29 members of the target organization: 19 members of Preventive/Scheduled Maintenance workgroups, 3 members of the Innovation/Reliability workgroup, 4 members of Planning/Analysis workgroup, and 3 members of the Warranty workgroup.

Access to the target worksite was obtained prior to instrument distribution (Appendix B). The participants were identified using the employee-lookup function of the intranet portal. The employee-lookup portal lists all managers for each department and all of their direct reports. The employee portal also provides the employee numbers, telephone numbers, and work addresses for each participant. An email was sent requesting participation through the company’s email system. The participants received a questionnaire consent letter (Appendix C) informing them that participation was voluntary, they had the right to refuse to answer any question, and they had the right to withdraw from the study at any time without penalty.

**Sources of Data**

The survey instrument was the sole source of the data for this study. The instrument consisted of rating-scale questions geared toward measuring employees’ attitudes, insights, or opinions about female leadership in the vehicle maintenance department. Likert scales, rating-scale research tools, are useful with attitudinal research (Edmondson, Edwards, & Boyer, 2012). The steps required with a Likert scale are the following (Edmondson et al., 2012):

- Make all statements expressions of desired behavior;
- Make statements clear, concise, and straight-forward;
• Have each statement worded in such a manner that a modal reaction occurs;
• Have approximately half of the statements on the upper end and half on the lower end of the scale (Edmondson et al., 2012).

Validity

Validity is the degree the results from a study are likely to be true and free from bias (Khorsan & Crawford, 2014). The researcher sought to ensure the interpretations of the findings satisfied both internal and external validity. Internal validity signifies the study results and conclusions are valid for the population, and external validity relates to the causal relationships generalized to different measures, persons, settings, and times (Khorsan & Crawford, 2014). The researcher also sought to ensure the instrument had content, construct, and face validity. Content validity refers to the degree the questions on an instrument encompasses the entire phenomenon being studied (Shankar-Hari, 2015). Next, construct validity is an assessment of how well the questions can be converted into measurable criteria, and face validity refers to the extent an assessment appears to measure the variables it is intended to measure (Shankar-Hari, 2015). Furthermore, the researcher used this quantitative study to represent reality instead of finding out the truth by focusing on concepts such as credibility, transferability, dependability, and conformability (Nakkeeran & Zodpey, 2012).

The researcher established content validity by constructing the questions on the instrument based on a poll of successful female leaders. The female leaders, including a company president, chief executive officer, councilwoman, state legislator, and college president, were asked about the characteristics of a successful female leader (Simon, 2016). Next, the research instrument was designed using the interpretive theory to determine how employees in remote and local workgroups perceived female-leader effectiveness. Thus, the
researcher gained construct validity by tailoring the questions to only employees within the department with female-leader experience. Next, to develop face validity, the researcher tested the instrument using random employees from the vehicle maintenance department. The employees replied that the instrument was a viable means to measure female-leader effectiveness.

External validity minimizes alternative explanations for research findings (Khorsan & Crawford, 2014). The questionnaires submitted to the participants warranted in-depth responses to a point that the surface consideration of representativeness and generalizability were replaced with compelling evocation of the participants’ actual experience (Seidman, 2013). Finally, external validity was established through the theory of constructivism as individuals created new understandings on the basis of interactions between what individuals already knew and believed and ideas and knowledge with which the individuals came into contact (Ebrahimi, 2013).

**Reliability**

Reliability relates to the consistency, replicability, and stability of the survey instrument completed by the participants. Before the questionnaire was used, it was vetted by a senior manager with the vehicle maintenance department. This provided a level of reliability. Also, the results of the study were based on experiences and ideas of vehicle maintenance employees who have or have had experience with female managers within the department instead of random employees based on the researcher’s preference. Finally, Cronbach’s alpha was used to test the reliability of the questionnaire.

**Data Collection Procedures**

The data were collected using questionnaires. Questionnaires were sent to members of the vehicle maintenance workgroup members with current or former female leaders within the...
department. An email was sent to all selected participants asking for their participation and informing them that the questionnaire was voluntary, confidential, and anonymous. The participants were informed of their right to discontinue the questionnaire at any time should the participants feel uncomfortable with the questions or due to the potential publication or presentation of the results sans any personal information. Finally, the participants were informed of how their contributions will be used to help determine perceptions of female leadership for a nontraditional department.

The questionnaire consisted of 18 rating-scale questions. A five-point Likert scale, a rating-scale research tool, was used in the research to measure the attitudes of the vehicle maintenance employees about their experience with female leaders within the department. The results were totaled for each participant, as well as workgroup, and the results were displayed in charts and graphs. All of the data collected will be stored in electronic media for no less than 36 months after the questionnaires are completed. The Likert scale used with the questionnaire ranged from 1 to 5 with 1 being strongly disagree and 5 being strongly agree.

**Data Analysis Procedures**

The researcher followed a four-step process to analyze the data:

1. Reliability Analysis
2. Factor Analysis
3. Test of Normality
4. Test of Association

**Reliability analysis.** When testing the reliability of an instrument, researchers are determining the ability of an instrument to produce consistent results. For this study, the researcher used the Cronbach’s alpha coefficient (α) alpha to test the structural reliability of the
questionnaire. Cronbach’s alpha measures the internal consistency of an instrument or scale, and the statistic used in a Cronbach’s alpha measures the correlations between items (Connelly, 2011). According to Tavakol and Dennick (2011), a coefficient ranging from 0.70 to 0.95 is considered acceptable. A measure of 0.95 indicates a high degree of consistency between items and low measurement error (Connelly, 2011).

**Factor analysis.** Next, a factor analysis was used to reduce the number of items on the questionnaire and to examine the preliminary structure of the items (Young & Bryan, 2016). With a factor analysis, researchers are afforded the opportunity to undertake measurements on a collection of variables to gain an idea about which constructs might be used to explain the intercorrelations among the variables (Comrey & Lee, 2013). The items on the questionnaire were rotated to reach an interpretable solution. The items on the questionnaire were also subject to a principal component analysis. Principal component analysis is a statistical methodology used for revealing internal structure of data in an effort to explain variability (Salvatore, Bramness, & Raislien, 2016). In a principal component analysis, the greatest variance is explained by the first coordinate, the second greatest variance on the second coordinate, and so on (Salvatore et al., 2016).

**Test of Normality.** The Shapiro-Wilk (S-W) test of normality was used to determine whether the results of the questionnaire were normally distributed. If the test is not significant ($p > .05$), the implied null hypothesis can be rejected and data can be viewed as being normally distributed. If data is normally distributed, a parametric test of association can be performed. If the data is not normally distributed, a non-parametric test of association can be used (Mahachie et al., 2013). Parametric tests have improved statistical power over non-parametric tests. However, when data involve non-interval scale measurements, a non-parametric test would be
more appropriate (Mahachie et al., 2013). The effect size was also calculated to determine the strength of the differences between the variables under study.

**Test of Association.** Based on the distribution of the variables, the appropriate test was performed. If the variables were normally distributed, an ANOVA test was conducted to compare the mean values between workgroups (Larson, 2008). If the variables are not normally distributed, a Mann-Whitney test was performed (Harris & Hardin, 2013). The Mann-Whitney test is similar to the ANOVA tests, except they use pair rankings rather than pair values as the unit of analysis (Emerson, 2016).

**Ethical Considerations**

The Belmont Report, consisting of beneficence, justice, and respect, contains ethical principles that guide all research involving human subjects (Cugini, 2014). The non-interventional research design used in the study resulted in no harm being brought to any of the subjects, ensured all of the participants were treated equally, and guaranteed the participants were able to consider the potential harms and benefits of the research. The design also allowed the participants to analyze the risks associated with the proposed research and to make a decision in the participants’ own best interest (Cugini, 2014). The initial email to the participants identified the intended use and benefits of the research and informed the participants of the potential publication or presentation of the results sans any personal information. The researcher ensured quality and integrity of the research and sought informed consent notifications, site authorization, and permission to use any instrument. Next, the researcher respected the confidentiality and anonymity of the research respondents, informed the participants that their contribution was voluntary, and that the research was independent and impartial. Finally, with IRB approval to conduct the research, all of the data collected will be stored in electronic media
for no less than 36 months after the questionnaires are completed. The results will then be deleted electronically and all paper formats shredded.

The researcher developed questions from an outsider’s point of view instead of as a member of the vehicle maintenance department. None of the employees’ names were used. The participants were assigned an identification number instead. Lastly, all of the participants understood that only a sample of the entire department was surveyed or observed.

Limitations

Limitations are out of the researcher’s control and are considered potential weaknesses (Ellis & Levy, 2009). The analysis, the nature of self-reporting, the questionnaire instrument, the sample, and the time constraints are all factors that should be considered when conducting research. The first limitation was the gender make-up of the department being studied. The study was conducted using a male-dominated workforce and how the employees with current or former female-leader experience within the department perceive female leadership. An entire vehicle maintenance workgroup can consist solely of males. However, since the study was based on employees with current or former female-leader experience within the department perception of female leaders, the gender make-up had no effect on the study. Next, there was a time constraint. The time spent conducting the research was considered non-peak months, months where package volume and workloads are average, for the operations support department. Nonetheless, the female managers are leading the employees on a year-round basis and the current or former female-led employees’ perceptions were based on the overall perceptions. Finally, although the research was only focused on employees who have or have had a female leader within the vehicle maintenance department, employees from 4 different workgroups met the criteria.
Summary

Chapter 3 contains a review of the quantitative causal comparative research design used in this study of the participants’ perception of female leadership in nontraditional vehicle maintenance leadership roles. The chapter contains the sample population and provides a count of members for each targeted group. The targeted groups were Planning and Analysis, Innovation and Reliability, Warranty, and Preventive/Scheduled Maintenance workgroups. The questionnaire instrument is presented in the chapter and included in the appendix. Next, Chapter 3 contains the data source used in the research which is a questionnaire. The chapter also contains the limitations discovered with this research and explains how the limitations will not negatively affect the results of the study. Finally, Chapter 3 contains the manner the data for the research were collected and how the data were analyzed. Chapter 4 will contain a review of the data collection and analysis.
Chapter 4: Data Analysis and Results

Introduction

The purpose of this research was to determine whether workgroup proximity explains the differences. The results can be used to assist researchers with further studies as they relate to nontraditional occupations, workgroup locations, and female leader effectiveness. A quantitative causal comparative research design was used in this study. The data were collected using a questionnaire completed by vehicle maintenance employees who currently have or have had a female manager within the vehicle maintenance department. Three groups of employees were located at the company’s headquarters, and one group of employees was located remotely. The questionnaire consisted of 18 Likert-Scale questions that were emailed to the participants using the company’s email. The results were used with the following research question and hypotheses:

RQ1: Does workgroup proximity explain the differences in perception of female leader effectiveness for a nontraditional department?

H1_0: There is not a significant difference in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups for a nontraditional department.

H1_A: There is a significant difference in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups for a nontraditional department.

Chapter 4 contains the problem statement and the purpose for this research study. Chapter 4 will also contain a description of the research method used in this study and an in-depth analysis of the quantitative data collected. Finally, Chapter 4 will contain a breakdown of the participants’ demographics and a summary of the combined findings.
**Descriptive Data**

The participants completing the questionnaire were vehicle maintenance employees who currently have or have had experience with a female manager within the department. The questionnaire gauged the employees’ perceptions of female leaders’ support in developing employees professionally, support in improving employees’ skills, and how well female leaders shared the goals and financial results of the company. The researcher was able to acquire the contact information for all targeted participants using the company’s employee portal and was able to submit consent forms to each member using the company’s email. Therefore, the original method of using Survey Monkey to disburse the questionnaire was replaced with the company’s email system as the researcher was able to reply to the confirmed consent emails with the questionnaire attached. Twenty-nine (29) questionnaires were distributed. Fifteen of the participants consented and replied to the questionnaire. This represented a 51.7% response rate. The response rate was below the minimum sample size requirement. The implication of this result will be discussed later in the Chapter and in Chapter 5.

The questionnaire collected the following information about each of the participants: workgroup, sex, years on the job, and management experience. The distribution of participants by workgroup were nearly even (Figure 4).
Eighty percent of the participants were male (Figure 5).
The number of participants per workgroup is shown in Figure 6.

![Figure 6. Study participants by Workgroup](image)

Finally, 53 percent ($n=8$) of the questionnaire participants have had previous management experience within the company (Figure 7).
The four targeted workgroups have employees who have been in management with the vehicle maintenance department or another department within the company. The participants have led groups such as Preventive/Scheduled Maintenance as well as Accounting, Sourcing, and Procurement workgroups. The remaining respondents (n=7) do not have management experience inside or outside the department or the company.

**Data Analysis Procedures/Results**

The researcher used Microsoft Excel and SPSS to analyze the data. Microsoft Excel was used to organize the data and present the data in graphical formats. SPSS was used to combine the data, to test the reliability of the instrument, perform a factor analysis, and perform tests of association.
Test of Reliability. The researcher tested the reliability of the survey instrument by computing the Cronbach’s alpha coefficient as described in Chapter 3. The initial Cronbach’s alpha coefficient for the survey instrument was 0.936; however, one item (Q17) was negatively correlated with the other items (Appendix D). After reviewing the wording of the item, it was decided to reverse code this question. Reverse coding is a technique used to correct the scoring of negatively-worded questions (Sonderen, Sanderman, & Coyne, 2013). Once reverse coding was completed, the Cronbach’s alpha was recomputed and the instrument’s coefficient increased to .942.

Factor Analysis. A factor analysis was conducted to determine the number of dimension measured, and align specific questions with dimensions. The initial factor analysis model identified 89.14% of the variance (Figure 8).

<table>
<thead>
<tr>
<th>Component</th>
<th>Total</th>
<th>% of Variance</th>
<th>Cumulative</th>
<th>Extraction Sums of Squared Loadings</th>
<th>% of Variance</th>
<th>Cumulative</th>
<th>Rotation Sums of Squared Loadings</th>
<th>% of Variance</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1.609</td>
<td>8.941</td>
<td>75.049</td>
<td>1.609</td>
<td>8.941</td>
<td>75.049</td>
<td>3.089</td>
<td>17.158</td>
<td>70.112</td>
</tr>
<tr>
<td>4</td>
<td>1.349</td>
<td>7.497</td>
<td>82.545</td>
<td>1.349</td>
<td>7.497</td>
<td>82.545</td>
<td>1.985</td>
<td>11.029</td>
<td>81.141</td>
</tr>
<tr>
<td>5</td>
<td>1.222</td>
<td>6.791</td>
<td>89.337</td>
<td>1.222</td>
<td>6.791</td>
<td>89.337</td>
<td>1.475</td>
<td>8.195</td>
<td>89.337</td>
</tr>
<tr>
<td>6</td>
<td>.740</td>
<td>4.113</td>
<td>93.449</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>.350</td>
<td>1.944</td>
<td>95.393</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>.251</td>
<td>1.392</td>
<td>96.785</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>.187</td>
<td>1.036</td>
<td>97.821</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>.143</td>
<td>0.794</td>
<td>98.615</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>.126</td>
<td>0.699</td>
<td>99.313</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>.048</td>
<td>0.268</td>
<td>99.582</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>.047</td>
<td>0.263</td>
<td>99.845</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>.028</td>
<td>0.155</td>
<td>100.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>1.004E-013</td>
<td>1.022E-013</td>
<td>100.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>1.001E-013</td>
<td>1.004E-013</td>
<td>100.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>.000</td>
<td>.000</td>
<td>100.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>.000</td>
<td>.000</td>
<td>100.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

Figure 8. Initial Factor Analysis Solution
However, some of the questions loaded on multiple factors due to the small sample size and some ambiguous questions (Appendix E). After five iterations of removing questions that did not load highly on a construct (> .50) or cross-loaded on multiple constructs, the resultant thirteen questions then accounted for 89.60% of the variance and resulted in five constructs (Appendix F). The researcher labeled these dimensions: encouragement, involvement, competency, motivation, and optimism.

**Test of Outliers.** The researcher calculated the mean of the entire scale and tested for outliers. Outliers can influence both the placement and dispersion of the mean (Stephen, Beaulieu, & Donoghue, 2009). As shown by Figure 9, no outliers were detected. As a result, the data was deemed to be valid and acceptable for testing.
Test of Normality. To determine which test to perform to answer the research question, the distribution of the instrument’s overall scale was tested. A S-W test was performed. The test was not significant, $W(15) = 0.924, p = 0.224$. As a result, the implied null hypothesis that the distribution was not normal could be rejected. This result allowed the researcher to perform a parametric test to answer the research question.

Test of Association. An ANOVA test was performed to determine the difference between means of remote and local workgroups. Prior to conducting the ANOVA test, a test of variance homogeneity was conducted. A Levene’s test was performed to calculate the divergence.
of data from the group mean (Levene, 1960). If the test is not significant, an underlying assumption of ANOVA would be met. The Levene’s test was not significant, $F(3,11) = 2.859, p = .086$. As a result, it is assumed that the variances between workgroups are equal.

The ANOVA test was conducted to determine the difference in perception of female leaders between workgroups. The test was significant, $F(3,11) = 4.929, p = 0.021$, $\eta^2 = 0.44$. This represents a large effect size (Cohen, 1992). In this situation, the effect size can be stated as 44% of the variance in the perception of female leaders can be accounted for by workgroup proximity. With quantitative studies, an effect size is the quantity that characterizes the degree of departure from the null state (Gierut, Morrisette, & Dickinson, 2015). Thus, the null hypothesis could be rejected, and the alternative hypothesis that there is an association between the perception of female leader effectiveness between remote workgroups and local headquarter workgroups for a nontraditional department can be accepted.

A post hoc test was conducted to determine which workgroup were significantly different. The Tukey’s Honest Significant Difference (HSD) test was selected to determine which mean values of each workgroup were significantly different. Based on the results of the test, only the mean perception of the Preventive/Scheduled Maintenance Workgroup and the mean perception of the Planning/Analysis workgroup were significantly different (Figure 10).
Multiple Comparisons
Dependent Variable: SurveyScore
Tukey HSD

<table>
<thead>
<tr>
<th>(I) Workgroup</th>
<th>(J) Workgroup</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prev/Sched Maintenance</td>
<td>Innovation/Reliability</td>
<td>-1.12308</td>
<td>.40327</td>
<td>.072</td>
<td>-2.3367</td>
</tr>
<tr>
<td></td>
<td>Planning/Analysis</td>
<td>-1.31538*</td>
<td>.37043</td>
<td>.020</td>
<td>-2.4302</td>
</tr>
<tr>
<td></td>
<td>Warranty</td>
<td>-1.78974</td>
<td>.40327</td>
<td>.260</td>
<td>-2.0034</td>
</tr>
<tr>
<td>Innovation/Reliability</td>
<td>Prev/Sched Maintenance</td>
<td>1.12308</td>
<td>.40327</td>
<td>.072</td>
<td>-2.3367</td>
</tr>
<tr>
<td></td>
<td>Planning/Analysis</td>
<td>-.19231</td>
<td>.42175</td>
<td>.967</td>
<td>-1.4616</td>
</tr>
<tr>
<td></td>
<td>Warranty</td>
<td>.33333</td>
<td>.45087</td>
<td>.879</td>
<td>-1.0236</td>
</tr>
<tr>
<td>Planning/Analysis</td>
<td>Prev/Sched Maintenance</td>
<td>1.31538*</td>
<td>.37043</td>
<td>.020</td>
<td>-2.006</td>
</tr>
<tr>
<td></td>
<td>Innovation/Reliability</td>
<td>.19231</td>
<td>.42175</td>
<td>.967</td>
<td>-1.0770</td>
</tr>
<tr>
<td></td>
<td>Warranty</td>
<td>.52564</td>
<td>.42175</td>
<td>.612</td>
<td>-.7436</td>
</tr>
<tr>
<td>Warranty</td>
<td>Prev/Sched Maintenance</td>
<td>.78974</td>
<td>.40327</td>
<td>.260</td>
<td>-1.4239</td>
</tr>
<tr>
<td></td>
<td>Innovation/Reliability</td>
<td>-.33333</td>
<td>.45087</td>
<td>.879</td>
<td>-1.6903</td>
</tr>
<tr>
<td></td>
<td>Planning/Analysis</td>
<td>-.52564</td>
<td>.42175</td>
<td>.612</td>
<td>-1.7949</td>
</tr>
</tbody>
</table>

* The mean difference is significant at the 0.05 level.

Figure 10. Post Hoc Test

Mean perceptions of other workgroups interactions were not statistically significant. The implication for this will be discussed in Chapter 5.

Summary

The researcher sought to determine whether workgroup proximity could explain any differences in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups in a vehicle maintenance department. Through a quantitative causal comparative research design, the researcher was able to submit a questionnaire to 29 members of the vehicle maintenance department, of which 15 replied. Next, a test of instrument reliability was done, followed by a factor analysis to explain the intercorrelations among the variables. Finally, outlier detection, a test of normality, and a test of association, were performed.
to determine the difference in the perception of female leader effectiveness between remote workgroups and local headquarter workgroups for a nontraditional department. The results of this research showed there a significant different in perception of female leader effectiveness between remote workgroups and local headquarter workgroups for a nontraditional department; specifically between the Preventive/Scheduled Maintenance Workgroup and the Planning/Analysis workgroup.
Chapter 5: Summary, Conclusions, and Recommendations

Summary of the Study

Prior research has been done to determine how female leaders are perceived. One study indicated that women in church-related organizations have had their success halted by the perception of female leaders (Scott, 2014). However, no studies have indicated whether workgroup proximity explains the difference in the perception of female leaders in nontraditional occupations between remote and local workgroups. The intent of this quantitative causal comparative research was to determine whether workgroup proximity explains the differences in perceptions for local and remote workgroups. By concluding whether perceptions of female leaders’ effectiveness differ among the two workgroups, researchers can then begin to determine why these differences exist.

This research used interpretive theory to gain a better understanding of workgroups’ perceptions of female leaders in their nontraditional operations support roles. The interpreting process requires three capacities: expressiveness, language processing, and cognition (Ding, 2014). The actual workers defined the current state of the relationships based on their reasoning or beliefs, and the results were used to address the research question.

A quantitative research methodology was used in collecting data for the research question. The data were collected using a questionnaire completed by employees with female-manager experience within the vehicle maintenance department. The questionnaire consisted of 18 Likert-Scale questions rated on a scale from 1-5 (1 – strongly disagree, 5 – strongly agree).

Chapter 5 contains a comprehensive summary of the overall study which will recap the essentials of the previous chapters. It begins with a summary of the study followed by the summary of findings and conclusions. Next, the Implications, which include theoretical, practical
and future, are discussed. Finally, chapter 5 ends with recommendations for future research and practice.

**Summary of Findings and Conclusion**

While studies show more females are beginning to occupy more leadership positions in nontraditional industries, these studies do not discuss how remote and local workgroups perceive the female leaders’ effectiveness in these roles. Nontraditional occupations for women can be defined as those occupations which have less than 25 percent females of the total employed workforce (Zula, 2014). A 2010 study indicated that only 7.7% of managers of engineers and 6.3% of managers of mechanics in the workforce were women (U.S. Department of Labor, 2010).

This research focused on whether the perception of female leader effectiveness differs between remote and local workgroups in a nontraditional department. The results of the research indicate there is a large, statistically significant difference in perception between the two groups. While there are differences between all workgroups, as depicted by a means plot, a post-hoc analysis identified the difference between Preventive/Scheduled Maintenance Workgroup and the Planning/Analysis workgroup as the only one being statistically significant (Figure 11).
Figure 11. Means Plot of Survey Scores by Workgroup

Implications

The framework for the study was based on the interpretive theory. The theory assisted in the research as the researcher can understand situations based on the actual participants (Li, 2014). Also, it requires three capacities: expressiveness, language processing, and cognition (Ding, 2014).

The results of the study add to the body of knowledge pertaining to the perception of women leaders in nontraditional leadership roles. Furthermore, the results can add to the body of knowledge pertaining to leadership perceptions of local workgroups and the perceptions of
remote workgroups. Next, this study includes useful data for Human Resources departments seeking to determine whether the difference in employee output can be attributed to workgroup proximity. Finally, this study includes useful information for senior level management in deciding where managers should be placed in relation to their employees.

**Theoretical implications.** At its core, interpretive theory deals with derverbalization which asserts that interpretation involves reformulation of source language on the basis of understanding (Ding, 2014). It can be divided into three vital capacities: expressiveness, language processing, and cognition. The research was based on the participants’ perceptions of female-leader effectiveness in a nontraditional vehicle maintenance department.

With expressiveness, a physical and mental similarity is present in processes regardless of material differences of objects (Giorgi, 2011). Thus, when an object is perceived, the first thing that is assumed is that the object could easily be classified as categorical. With the questionnaire, eighteen questions were included that required the participants to rate them between 1 and 5 with 1 being unfavorable and 5 being favorable. The participants were all members of the Vehicle Maintenance department with current or previous experience with female managers.

Next, language processing involves processing what is heard. The slightest breakdown in this process impacts an individual’s ability to affectively process and use the information that is heard (Medwetsky, 2011). Some of the participants were remotely located and could only be contacted via email. This deprived the researcher the ability to use the spoken language to explain the significance of the questionnaire and the study to the participants.

Finally, cognition involves aspects such as seeing, thinking, and reasoning, and it incorporates intentional states such as beliefs and wills (Serrano et al., 2014). It segments and
recognizes a perceptual event and grounds it to a symbol or meaning (Serrano et al., 2014). The study relied on employees with actual experience with female leaders. Thus, they were able to provide feedback based on their own involvement with their female manager.

**Practical implications.** In 2008, Society for Human Resource Management (SHRM) showed that nearly half of their 4500 members voiced preference for developing expertise in-house instead of outsourcing and wanted to maintain face-to-face contact with employees (Smith, 2015). However, in 2015, companies are beginning to empty house by outsourcing transactional HR tasks such as benefits and focus more on leadership and developing talent (Smith, 2015). With this new transformation, HR departments are looking for ways each department can be improved in terms of their leadership. Therefore, the results of this study can be used by HR departments in nontraditional industries to understand how employees currently perceive female leadership. The participants, who were from 4 of 7 vehicle maintenance workgroups, offered their perceptions of female leadership based on personal experience.

A second practical implication of the research is to improve employee output. Employees who perceive their leaders to be supportive with employee-development can prove more equipped to handle or even exceed their workload. Also, considering Ertas’ (2015) fact that younger employees, on average, have higher quit rates due to their flexibility with career choice, financial, and family obligations, a company would do well to ensure the younger employees are content with the manner in which female leaders are molding and encouraging their employees.

A final practical implication of the research is to address how senior management chooses to domicile female leaders with remote workgroups and how senior management sets the female leaders’ location visits. The three workgroups that are located at headquarters have or have had female leaders that are or were within walking distance of their employees. These
workgroups had favorable perceptions of their female leaders in terms of improving employees’ skills, treating employees equally, making decisions, and having their own leadership styles. Remote workgroup employees, however, viewed female leaders unfavorably in terms of improving employees’ skills, treating employees equally, making decisions, and having their own leadership styles.

**Future implications.** An implication for future research is to determine what differences exist between female-led workgroups based at the headquarters of a company and female-led workgroups based remotely. Based on the results of this research, the participants from the maintenance groups, those located in another state, were the employees with an overall unfavorable perception of female leaders within the department. The questionnaire could serve as a basis for understanding the current relationship between female managers/employees of the headquartered groups and remote groups.

**Recommendations**

Studies have been done to show a declining rate of men and increasing rate of women entering the workforce that will attribute to a greater need for women to pursue nontraditional occupations as the supply of male workers decline (Zula, 2014). This fact, coupled with the point Kessler (2014) made about female leaders bringing opportunities such pro-social behavior and panorama views, is reason for organizations to seek female leaders. However, it is also helpful to recognize how current employees perceive female managers.

**Recommendations for future research.** The first recommendation for future research is to determine whether the type of work performed by workgroup plays a role in how employees perceive female leaders in a nontraditional department. The type of work can range from developing an engineering specification for a pickup and delivery truck in Japan, creating a
training video that details the proper use of an aircraft pushback tractor, or replacing the transmission in a sixty thousand-pound main deck loader. The workgroups are all considered nontraditional, but only one workgroup, Preventive/Scheduled Maintenance, had an unfavorable perception of its female leader.

A second recommendation for future research is to determine how females can increase their effectiveness as remote workgroup managers. Employees look for managers who are up-to-date, understand best practices, and manage with knowledge and confidence (Dacri, 2015). Therefore, a similar questionnaire could be submitted to employees and fellow managers to determine whether they believe female leaders are effective in managing their resources, whether female leaders are incorporating the best practices, and whether female leaders make knowledgeable decisions and stand by the decisions.

Finally, future research concerning the effect of unfavorable perceptions of female leaders on a department is recommended. Departments should not only be aware of any unfavorable perceptions of management, they should also know how this perception could affect the department as a whole. In addition to negatively affecting employee morale and employee retention, the reputation of the department and outside relationships can be affected as well.

Recommendations for practice. The first recommendation is for human resource departments who are focusing on talent acquisition. This talent-acquisition responsibility of a human resource department can be important and retaining this talent should be important as well. Thus, it would be very important for human resources to ensure employees perceive female management favorably or address the areas that are viewed unfavorably. The results of this study indicate maintenance workgroup participants have different perceptions of female leaders than planning, innovation, or warranty workgroup participants. The workgroups stationed at
headquarters, planning, innovation, and warranty, perceive female leaders’ management support, sharing of information, employee involvement, and equal treatment favorably and the maintenance workgroups, stationed remotely, perceive female leaders’ management support, sharing of information, employee involvement, and equal treatment unfavorably.

The second recommendation is for senior-level managers. One third of the participants of the study revealed an unfavorable perception of female leaders. These participants were located remotely with their female managers domiciled in other states. Senior-level managers could incorporate training programs, mentoring programs, and diversity programs to assist female leaders in managing remote employees. Senior management could also assist by requesting more mentoring for the women in the department, requesting more marketing of female technicians, and encouraging more diversity within male-oriented groups.

A final recommendation is to expand the use of the initial survey instrument to a larger, more diverse population. A small sample size can influence the statistically validity of a survey instrument. Precautions were taken relating to the instrument; however, it is acknowledged that a subsequent researcher might identify different or less factors than identified during this research.

**Conclusion**

Nontraditional occupations for females are occupations with the total number of the employed workforce less than 25 percent female (Zula, 2014). A vehicle maintenance department responsible for engineering, purchasing, repairing, and maintaining pickup and delivery (PUD) vehicles and ground support equipment (GSE) has nontraditional positions. Thus, with the declining rate of males and increasing rate of females entering the workforce since the 2008 recession, females are seeking nontraditional positions including leadership positions (Hill, 2013). Furthermore, due to no studies being done to show how the employees
working under these female leaders in nontraditional industries perceive female leaders, this study was conducted to explore these employees’ perceptions. Data were collected from members of the vehicle maintenance department with current or previous female-leader experience within the department. Participants of the Planning and Analysis, Innovation and Reliability, and Warranty workgroups, local workgroups, overall perceived female leaders favorably, and participants of the Preventive/Scheduled Maintenance workgroup, remote workgroups, overall perceived female leaders unfavorably. Understanding how the participants perceive female leaders can lead to more effective relationships for female leaders and their employees, can assist human resources with retaining talent, and can help senior-level management setup training programs.
References


doi:10.1161/CIRCULATIONAHA.107.654335


Omair, A. (2015). Selecting the appropriate study design for your research: Descriptive study designs. *Journal of Health Specialties, 3*, 153-156. doi:10.4103/1658-600x.159892


# Appendix A

## Vehicle Maintenance Employees' Perception of Female Leadership

The following questionnaire is only intended for vehicle maintenance employees who have or have had a female leader within the department.

<table>
<thead>
<tr>
<th>Workgroup</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prev/Sched Maintenance</td>
<td></td>
</tr>
<tr>
<td>Innovation/Reliability</td>
<td></td>
</tr>
<tr>
<td>Planning/Analysis</td>
<td></td>
</tr>
<tr>
<td>Warranty</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sex</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years on the Job</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>6-10</td>
<td></td>
</tr>
<tr>
<td>11+</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previous Management Experience</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Please enter the correct numeric response to each question in column I

*"My Manager" refers to your current or former female vehicle maintenance manager within the department.*

<table>
<thead>
<tr>
<th>#</th>
<th>Question</th>
<th>Survey Scale:</th>
<th>1=Strongly Disagree</th>
<th>2=Disagree</th>
<th>3=Neutral</th>
<th>4=Agree</th>
<th>5=Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>My manager aides in the improvement of my skills and capabilities</td>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>My manager supports my professional growth</td>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>My manager informs me of critical business issues, goals, and group responsibilities</td>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>My manager makes decisions based on her level of responsibility</td>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>My manager shares her opinions and beliefs</td>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>My manager seeks faster ways to work with less resources</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------</td>
<td>------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>My manager identifies customer's concerns and assures customers receive required services</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>My manager treats me with mutual care and respect</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>My manager is resilient with difficult situations</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>My manager is tolerant of differing views of her employees</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>My manager encourages teamwork</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>My manager focuses on what can be done today instead of focusing on past situations or things that are out of her control</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>My manager shows enthusiasm, energy, and a sense of joy for her leadership position</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>My Manager has her own leadership style</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>My manager rewards her employees when they go above and beyond their assigned duties</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>My manager disciplines her employees when they underperform or fail to meet deadlines.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>My manager fails to utilize her authority as it relates to her employees</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>My manager empowers other women within the department to seek management positions</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Site Permission to Conduct Research

Date: 10/6/2015

To Columbia Southern University – DBA Dissertation Committee:

FedEx Express Global Vehicles (Vehicle Maintenance/Warranty/Planning and Analysis/Innovation) is granting James Morris, a current doctorate student at Columbia Southern University, permission to conduct research as it relates to his dissertation/research project involving employees’ perception of female leadership in nontraditional roles.

The research will involve a questionnaire consisting of vetted, pre-approved questions submitted to members of different workgroups, direct observation of workgroup meetings, and the viewing of “Brake-It-Down” videos. Staff participation is voluntary, confidential, and anonymous. The results of the study may be used in publications, reports, or presentations, but personal information such as names will not be publicized. Information and data collected from this study will be electronically stored and secured in an electronic media for a period of 36 months after the reply and then deleted and destroyed.

By: Diego Guadalupe (Printed Name)

(Signature)

Senior Manager Global Vehicles (Title)

Global Vehicles Strategic Support
3690 Hacks Cross Road, Bldg I 1st Floor, Memphis, TN 38125
901-434-7481/jdguadalupe@fcedx.com
Dear Participant:

I am currently a Doctoral student at Columbia Southern University completing a Doctorate in Business Administration. I am in the process of conducting a research study aimed at determining how vehicle maintenance employees perceive female leaders in nontraditional roles and how they feel females can increase their presence in management.

I invite you to participate in this research study via a questionnaire that should take less than 7 minutes to complete. It will consist of rating-scale and open-ended questions submitted to members of various Global Vehicle workgroups who have experience with female leaders within the department. The data collected will be secured in an electronic format and stored for no less than 36 months after the replies.

Your participation in this research project is completely voluntary. You may decline the entire questionnaire, or leave blank any questions you do not wish to answer without penalty. Your participation will help determine the effectiveness of females leaders in an industry historically dominated by males and will help develop steps for increasing females leaders in a vehicle
maintenance department. All responses will remain confidential and anonymous, and while the results of the study may be used in publications, reports, or presentations, no personal information will be publicized. Finally, a summary of the findings will be available upon request. If you consent, please reply using the statement further below.

If you have any questions about this project, feel free to contact me at jmorris3sr@yahoo.com. For other inquiries about this project or program, please contact DBA Program Director Dr. Gary Piercy at gary.piercy@columbiasouthern.edu. The following is the university’s information: www.columbiasouthern.edu – website; 21982 University Lane, Orange Beach, AL 36561 – address; 800-977-8449 – telephone.

Sincerely,

James Morris

I, _____________________________, consent to participate in the described study. I understand that my participation is voluntary, and that I can withdraw from the study at any time.
## Appendix D

### Item-Total Statistics

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>My manager aides in the improvement of my skills and capabilities</td>
<td>54.40</td>
<td>172.829</td>
<td>.911</td>
<td></td>
<td>.927</td>
</tr>
<tr>
<td>My manager supports my professional growth</td>
<td>54.60</td>
<td>171.400</td>
<td>.858</td>
<td></td>
<td>.928</td>
</tr>
<tr>
<td>My manager informs me of critical business issues, goals, and group responsibilities</td>
<td>54.07</td>
<td>175.495</td>
<td>.722</td>
<td></td>
<td>.931</td>
</tr>
<tr>
<td>My manager makes decisions based on her level of responsibility</td>
<td>54.20</td>
<td>172.886</td>
<td>.886</td>
<td></td>
<td>.928</td>
</tr>
<tr>
<td>My manager shares her opinions and beliefs</td>
<td>53.73</td>
<td>175.067</td>
<td>.811</td>
<td></td>
<td>.929</td>
</tr>
<tr>
<td>My manager seeks faster ways to work with less resources</td>
<td>54.27</td>
<td>175.352</td>
<td>.658</td>
<td></td>
<td>.933</td>
</tr>
<tr>
<td>My manager identifies customer's concerns and assures customers receive required services</td>
<td>54.00</td>
<td>170.571</td>
<td>.797</td>
<td></td>
<td>.929</td>
</tr>
<tr>
<td>My manager treats me with mutual care and respect</td>
<td>54.40</td>
<td>166.114</td>
<td>.869</td>
<td></td>
<td>.927</td>
</tr>
<tr>
<td>My manager is resilient with difficult situations</td>
<td>54.27</td>
<td>179.067</td>
<td>.606</td>
<td></td>
<td>.934</td>
</tr>
<tr>
<td>My manager is tolerant of differing views of her employees</td>
<td>54.33</td>
<td>178.381</td>
<td>.730</td>
<td></td>
<td>.931</td>
</tr>
<tr>
<td>My manager encourages teamwork</td>
<td>53.93</td>
<td>178.210</td>
<td>.658</td>
<td></td>
<td>.933</td>
</tr>
<tr>
<td>My manager focuses on what can be done today instead of focusing on past situations or things that are out of her control</td>
<td>54.00</td>
<td>177.571</td>
<td>.779</td>
<td></td>
<td>.930</td>
</tr>
<tr>
<td>My manager shows enthusiasm, energy, and a sense of joy for her leadership position</td>
<td>54.33</td>
<td>178.095</td>
<td>.741</td>
<td></td>
<td>.931</td>
</tr>
<tr>
<td>My manager has her own leadership style</td>
<td>53.53</td>
<td>192.267</td>
<td>.214</td>
<td></td>
<td>.942</td>
</tr>
<tr>
<td>My manager rewards her employees when they go above and beyond their assigned duties</td>
<td>54.00</td>
<td>177.286</td>
<td>.656</td>
<td></td>
<td>.933</td>
</tr>
<tr>
<td>My manager disciplines her employees when they underperform or fail to meet deadlines.</td>
<td>53.67</td>
<td>191.667</td>
<td>.409</td>
<td></td>
<td>.937</td>
</tr>
<tr>
<td>My manager fails to utilize her authority as it relates to her employees</td>
<td>54.67</td>
<td>204.952</td>
<td>-.224</td>
<td></td>
<td>.946</td>
</tr>
<tr>
<td>My manager empowers other women within the department to seek management positions</td>
<td>54.27</td>
<td>192.067</td>
<td>.401</td>
<td></td>
<td>.937</td>
</tr>
</tbody>
</table>
## Appendix E

<table>
<thead>
<tr>
<th>Related Component (Matrix)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>My manager is in the improvement of my overall job satisfaction</td>
<td>786</td>
<td>470</td>
<td>310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager supports my professional growths</td>
<td>613</td>
<td>514</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager infuses me with a sense of our overall business success, goals, and group responsibilities</td>
<td>666</td>
<td>537</td>
<td>404</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager makes decisions based on level of responsibility</td>
<td>593</td>
<td>599</td>
<td>531</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager shares her opinion and beliefs</td>
<td>386</td>
<td>300</td>
<td>737</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager values fit with work, wellness, resources</td>
<td>773</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager attends customers’ concerns and sincere customer responses</td>
<td>855</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager treats me with control, care, and respect</td>
<td>422</td>
<td>605</td>
<td>348</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager is resilient with difficult situations</td>
<td>339</td>
<td>805</td>
<td>-301</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager is able to deal with difficult events of my employer</td>
<td>924</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager encourages teamwork</td>
<td>800</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager fosters a culture in which we do today instead of focusing on promises or things that are out of her control</td>
<td>545</td>
<td>497</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager shares, supports, and a sense of our heritage in daily practice</td>
<td>519</td>
<td>716</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager has her own leadership style</td>
<td>313</td>
<td>186</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager encourages her employees when they go beyond their job expectations</td>
<td>452</td>
<td>714</td>
<td>670</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager disciplines her employees when they go beyond their job expectations</td>
<td>718</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager recognizes her employees’ contributions, or the team’s achievements</td>
<td>701</td>
<td>-354</td>
<td>777</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager rewards other versions of the department to which I am assigned</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager does what her authority as a leader to her employees</td>
<td>793</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Appendix F

*Rotated Component Matrix*<sup>a</sup>

<table>
<thead>
<tr>
<th></th>
<th>Component 1</th>
<th>Component 2</th>
<th>Component 3</th>
<th>Component 4</th>
<th>Component 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>My manager is tolerant of</td>
<td>0.910</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>differing views of her</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager is resilient under</td>
<td>0.869</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>difficult situations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager seeks better ways</td>
<td>0.855</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to work with less resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager empowers other</td>
<td>0.733</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>women within the department</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to seek management positions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager treats me with</td>
<td>0.710</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mutual care and respect</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager encourages</td>
<td>0.887</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>teamwork</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager focuses on actions</td>
<td>0.854</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>that can be done today</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>instead of focusing on past</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>situations or things that</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>are out of her control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager identifies</td>
<td>0.839</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>customer’s concerns and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>serves customers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>receive required services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager has her own</td>
<td>0.870</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>leadership style</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager rewards her</td>
<td>0.764</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employees when they go above</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and beyond their assigned</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>duties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager disciplines her</td>
<td>0.870</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employees when they</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>underperform or fail to meet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>deadlines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager shares her</td>
<td>0.578</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>opinions and beliefs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager fails to utilize</td>
<td>0.563</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>her authority as it relates to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>her employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Method*: Principal Component Analysis.

*Rotation Method*: Varimax with Kaiser Normalization.

<sup>a</sup> Rotations converged in 5 iterations.