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Employee Job Satisfaction and Attitudes in Virtual Workplaces

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Walden University

College of Social and Behavioral Sciences

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Rebecca K. Mansfield

has been found to be complete and satisfactory in all respects,
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Walden University
2018

Abstract

Employee Job Satisfaction and Attitudes in Virtual Workplaces

by

Rebecca K. Mansfield

MS, Walden University, 2011

BA, University of Hawaii at Hilo, 2006

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Industrial – Organizational Psychology

Walden University

March 2018

Abstract

People who telecommute or work in virtual settings report higher satisfaction from increased flexibility and autonomy. However, relationships with leaders are more difficult to build, particularly as leadership in virtual workplaces tends to be less hierarchical. It is known that leader-member communication is an important aspect of employee job satisfaction and a significant problem exists for leaders who are ill-prepared to function in the leadership role required by a virtual workplace. The purpose of the quantitative study was to examine if employee job satisfaction predicts attitude toward virtual workplace setting and if this relationship is moderated by leader-member communication and leadership style. The theoretical frameworks that guided the study were the job demands-resources model and media richness theory. Relationships between variables were explored using correlation and multiple regression, while controlling for moderating variables. 145 of the 295 telecommuters fit the parameters. The findings revealed a significant relationship between attitude toward telecommuting and job satisfaction. The leader-member exchange and transformational leadership styles significantly and positively affected the relationship between attitude and job satisfaction, while passive avoidant leadership style significantly and negatively affected the relationship between attitude and job satisfaction. These findings can help leaders as they aim to improve communication for the growing number of employees who telecommute.

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Dedication

This is dedicated to my beloved son Maddox. Follow your dreams and anything is possible. This is also dedicated to my amazing older brother Toby, who went too soon and loved living fast; also, my sister Ding, who taught us that life is too short and to love every moment. To the strong women who influenced and helped me be the woman I am today: Betty Sleczkowski, MaryLou Hartmann, Katherine Sleczkowski, Diana Jardine, and Virginia Mansfield. Finally, to the remarkable men who taught us to never give up: Antonio Russo, Charles Mansfield, Alfred Sleczkowski, and Robert Sleczkowski—you all live on in all of us.

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Chapter 1: Introduction to the Study

Introduction

People who telecommute or work in virtual settings report high levels of satisfaction due to increased flexibility and autonomy (Sardeshmukh, Sharma, & Golden, 2012). However, relationships with leaders tend to be difficult to build, particularly as leadership in virtual workplaces may be less hierarchical (Hoch & Kozlowski, 2014; Skogstad et al., 2015). Leader-member communication is an important aspect of employee job satisfaction (Loi, Chan, & Lam, 2014) and a significant problem exists for leaders who are ill-prepared to function in the leadership role required by a virtual workplace (Kirkman, Rosen, Tesluk, & Gibson, 2004). Many virtual leaders are unaware of the strengths, perceptions, or merits associated with the unique characteristics of a telecommuting employee (Hoch & Kozlowski, 2014; Kirkman et al., 2004; Lockwood, 2015). Research is essential for the development of effective management and leadership strategies to meet the requirements of the growing segment of the workforce that telecommutes or works within a virtual setting (Irby, 2014) and a significant gap exists that explores the relationship of a leader's leadership style and leader-member communication in the virtual workplace (Dahlstrom, 2013).

The purpose of the quantitative study was to examine if employee job satisfaction predicts attitude toward virtual workplace setting and if this relationship is moderated by leader-member communication and leadership style. The independent variable was employee job satisfaction and the dependent variable was attitude toward virtual workplace setting, and the moderating variables were leader-member communication and

leadership style. This research study measured whether leader-member communication and leadership style in the virtual setting impacts an employee's job satisfaction, resulting in positive or negative satisfaction levels, which consequently impacted their attitudes. The dependent variable, attitude, is dependent on the employee's job satisfaction. Within the context of this study, it was hypothesized that if an employee is satisfied with his vocation, then he will have a positive attitude toward the employer, but if an employee is unsatisfied with her vocation, then she will have a negative attitude toward the employer. The independent variable, employee job satisfaction, is dependent on the leader-member communication and leadership style—the moderating variables—and the employee's job satisfaction will therefore influence the employee's attitude toward their employer. Relationships between variables were explored using correlation and regression based techniques to examine the relationships between variables while controlling for moderating variables. The results of the study led to an understanding of how leadership styles and member-leader exchange impact attitudes towards virtual workplace settings and improve recruitment and management of telecommuting workers.

This chapter will provide the background to focus of this study and a concise statement of the problem to be researched. This will be followed by presentation of the research questions and associated hypotheses. Next, the theoretical framework of the study, nature of the study, key definitions, assumptions, scope, and limitations will be presented and discussed. The chapter will conclude with discussing the significance of the study and a summary of the content.

Background

Virtual Workers

Virtual workers (Hoch & Kozlowski, 2014), often referred to as telecommuters (Irby, 2014) or teleworkers (Barber & Santuzzi, 2015), comprise a significant portion of the workforce (Irby, 2014; Schmidt, 2014). Upwards of 61% of organizations with more than 500 employees engage in the use of virtual workers and teams (Schmidt, 2014). While virtual environments offer a variety of benefits to individual workers—for example individuals with higher neurotic measures are more likely to find telecommuting more satisfactory as there were fewer virtual-work challenges than in traditional office jobs (Clark, Karau, & Michalisin, 2012)—there are also many challenges specific to telecommuting. Virtual teams function differently than face-to-face teams (Gera et al., 2013).

Virtual work is often complex, with team members often assigned to more than one project or work effort (Cummings & Haas, 2012; Schmidt, 2014), thus the individual must effectively allocate their time (Cummings & Haas, 2012). There are significant changes in work dynamics compared to a traditional office role – particularly role ambiguity and increased level of worker autonomy (Sardeshmukh et al., 2012). There is evidence of a concept referred to as *telepressure*, separate from personal or work-related factors, associated with lower levels of job satisfaction, increased absenteeism, burnout and reduced sleep quality (Barber & Santuzzi, 2015). Perceptions of telepressure include technological overload and feelings of public self-consciousness (Barber & Santuzzi, 2015).

The greater the level of personal responsibility the virtual worker has, the greater the need for virtual employment allowing for work hour flexibility (Galea, Houkes & De Rijk, 2013). According to researchers, this has become a necessity rather than a luxury for many virtual workers (Galea et al., 2013), particularly among workers with responsibilities extending beyond the professional realm (Luse, 2013). When virtual workers are required to work overtime from the home environment, employee satisfaction significantly decreases as it impinges on the work-life and home-life balance, frequently leading to marital discord (Ojala, Natti, & Anttila, 2014). Other potential challenges to telecommuters include the potential for team output being ineffective due the decreased ability to personally interact with each other, personal distractions taking away from the work-home environment, limited face-to-face modes of communication, reduced management access, the perception of inadequate levels of technology, and limited access to required materials required to perform the job, such as files (Greer & Payne, 2014).

Attitude Toward Virtual Workplaces

Understanding a worker's attitude towards the workplace can be an important aspect in retaining and attracting new virtual workers. As previously discussed, there are significant personality factors that may influence an individual's perceptions and attitudes towards virtual workplaces, but other variables may play a role in shaping attitudes. Demographic variables related to the individual may play a key role; for example, married individuals tend to favor teleworking more than single counterparts (Lim & Teo, 2000), mostly due to the increased flexibility in fitting family commitments around work.

Mothers in particular may be more receptive towards telecommuting as it allows them to increase their involvement in family and child care without the sacrifice of their career (Abdul Azeez & Suipan 1996; Lim & Teo, 2000).

Work-related factors may also play a large role in determining attitude towards telecommuting and many of these factors may be influenced by the leadership style of a supervisor or communication with a supervisor. For example, job insecurity is the amount of uncertainty a person has about his or her job continuing into the further. Previous research has shown that individuals perceive teleworking can increase job insecurity due to out-of-sight, out-of-mind syndrome, or, more specifically, that not being present in the physical office may result in them losing out in visibility and direct daily interaction with their supervisors and coworkers—resulting in them being passed over during promotion times or generally forgotten about in the office (Duxbury & Neufield., 1999; Huws, Korte, & Robinson, 1990; Ramsower, 1985). Certain leadership styles may promote or help abate this feeling of being forgotten in the workplace by a subordinate, and communication between virtual workers and their leaders may play a key mitigating role in preventing negative attitudes towards virtual workplaces associated with out-of-sight, out-of-mind syndrome.

Communication

Communication in the virtual work environment is critical; there are many challenges to the virtual worker that require constant communication with coworkers and the commination breakdown risk is higher for virtual teams that those in traditional face-to-face environments (Daim et al., 2012). Often, communication in the virtual

environment breaks down due to greater challenges with trust, cultural diversity, and differences between and among teammates, problematic interpersonal relations, issues with leadership, and issues with technology (Daim et al., 2012). A delay in information exchange based on electronic communication use has the potential to impact team member relationships among each other (Guenter, Emmerik, & Schreurs, 2014). This breakdown can further lead to delays in the exchange of pertinent information required for task completion (Guenter et al., 2014). Therefore, communication options for virtual workers are seen as a paramount mitigation strategy to enhance job satisfaction and performance (Greer & Payne, 2014). In fact, team effectivity is directly related to communication quality (Nydegger & Nydegger, 2010).

Leadership

Leadership also has a very strong impact on job performance and satisfaction (Aktas, Gelfand, & Hagnes, 2015; Braun, Peus, Weisweiler, & Frey, 2013; Cogliser et al., 2013). The impact of leadership in the face-to-face environment has been researched for decades (Çakmak, Öztekin, & Karadağ, 2015; Choudhary, Akhtar, & Zaheer, 2013; Day & Antonakis, 2013; Grant, 2012; Lam & O'Higgins, 2012; Lewis, 2014; Pauliene, 2013; Purvanova, 2014; Shurbagi, 2014; Tse & Chiu, 2011), but leadership and its impact in the virtual environment is a newer phenomenon. Current researchers have demonstrated that there are significant differences in leadership skills required to foster increased levels of job satisfaction and performance in virtual teams compared to traditional teams in the face-to-face setting (Carter, Seeley, Dagosta, DeChurch, & Zaccaro, 2014; Serban et al., 2015). Evidence suggests extroversion, cognitive ability,

self-efficacy, and leadership emergence are moderated in the virtual setting when compared with the face-to-face environment (Serban et al., 2015).

Evidence exploring the interaction between virtual leadership and communication is scarce. Schmidt (2014) demonstrated that effective virtual leadership required that communication between teams, individuals, and the virtual leader occur with greater frequency than in traditional face-to-face office settings. However, Lockwood (2015) also evidenced the potential challenge of engaging the use of information and communication technology by leaders in the virtual environment, highlighting they can easily fall prey to communication misunderstandings due to cultural diversity without the benefit of visual and verbal cues available in face-to-face communication (Lockwood, 2015). In fact, cultural values, norms, and perceptions significantly impacted both the type and use of specific electronic communication media, particularly in relation to communicating in a virtual environment (Duranti & de Almeida, 2012). The need for increase communication, but the difficulties associated with virtual communication, can create a delicate balancing act for virtual leaders.

Given that the use of virtual work environments are projected to increase into the future, research was essential for the development of effective management and leadership strategies to meet the requirements of a workforce that telecommutes or works within a virtual setting (Irby, 2014). Leadership style may also impact virtual worker job satisfaction, as some leadership styles may be more suited to the virtual environment than others. There are a number of leadership strategies, types, and approaches evidenced throughout the literature on organizational management (Day & Antonakis, 2013; Lewis,

2014; Pauliene, 2013). Each specific leadership style is associated with its own set of unique attributes and impacts on staff (Pauliene, 2013). For example, *transformational leadership is* a leadership approach that motivates staff to problem solve, and work to their own potential based on motivation that inspires, an idealized form of admirable leadership appealing to the emotions of workers, intellectual stimulation, and individualized attention and consideration (Tarsik, Kassim, & Nashrudin, 2014). *Transactional leadership* is similar; however, transaction leaders employ charismatic elements and the use of contingent rewards, in a quid quo pro manner (Tarsik et al., 2014). *Laissez-faire* leaders are those that follow an approach that affords little direction to staff, fostering employee autonomy, often to the detriment of job performance (Tarsik et al., 2014). Finally, *shared leadership* is defined as within-team interactive and influential efforts among and between team members to foster the satisfaction of team objectives and goals (Ulhøi & Müller, 2014). All leadership styles have significant research conducted on their relationships with job satisfaction in face-to-face environments, but there was a lack of research on their impacts in virtual environments. A significant gap exists that explores the relationship of a leader's leadership style and leader-member communication with job satisfaction, specifically of virtual workplaces (Dahlstrom, 2013). It was the aim of this study to begin filling this gap.

Problem Statement

It is unknown how leadership style and leader-member communication may moderate observed relationships between job satisfaction toward virtual workplaces and the attitudes of employees. According to the United States Bureau of Labor Statistics

(BLS), 20% of employees have telecommuted for work, and people who work virtually report higher job satisfaction compared to their counterparts who work in traditional office settings (Irby, 2014). People working in virtual settings who are satisfied with their jobs have reported that their satisfaction results from increased flexibility and autonomy and decreased work pressure from leaders (Sardeshmukh et al., 2012). Leadership style in virtual workplace settings tends to be characterized as less hierarchical in nature and more shared within a team, a style associated with higher employee job satisfaction (Hoch & Kozlowski, 2014; Skogstad et al., 2015).

Despite the advantages of working in a virtual environment, leader-member communication can be challenging in virtual workplaces because of the absence of traditional face-to-face communication channels (Hoch & Kozlowski, 2014; Lockwood, 2015). The virtual workplace is different from traditional workplace settings in terms of the isolation that telecommuters often experience from other employees and their managers, potentially contributing to lower job satisfaction (Harrington & Santiago, 2015). The disadvantages associated with virtual environment such as decreased communication effectiveness suggest that certain conditions or factors may be necessary for job satisfaction to be experienced by employees (Zhang, 2016).

Given that leader-member communication and leadership style have been both found to be related to employee job satisfaction (Irby, 2014; Loi et al., 2014), their role in a virtual worker's attitude towards virtual workplaces needs to be examined. Particularly limited information exists about the role of leadership style and leader-member communication in the virtual workplace (Dahlstrom, 2013), and research has not yet

explored the ways that leadership style and leader-member communication may moderate observed relationships between attitude towards virtual workplaces and job satisfaction. The problem was whether employee job satisfaction predicts attitude toward virtual workplace setting and if this relationship is moderated by leader-member communication and leadership style. The study addressed the gap in the literature by examining the moderating effect of leadership style and leader-member communication with the level of job satisfaction of employees working in virtual settings, on the dependent variable of attitude towards virtual workplaces.

Purpose of the Study

The purpose of the quantitative study was to examine if employee job satisfaction predicts attitude toward virtual workplace setting and if this relationship is moderated by leader-member communication and leadership style. Moreover, I strove to discover whether—and, if so, to what degree—leader-member communication and leadership styles, the moderating variables, influence this relationship. This research study I measured whether leader-member communication and leadership style in the virtual setting impacts an employee's job satisfaction, resulting in positive or negative satisfaction levels, which consequently impacts an employee's attitude. The dependent variable, attitude, is dependent on the employee's job satisfaction. If an employee is satisfied with her vocation, then she will have a positive attitude toward the employer, but if an employee is unsatisfied with her vocation, then she will have a negative attitude toward the employer. The independent variable, employee job satisfaction, was dependent on the leader-member communication and leadership style—the moderating

variables—and the employee's job satisfaction will therefore influence the employee's attitude toward the employer. The results of the study may lead to a clearer understanding of how attitudes toward virtual workplace setting are shaped, which may be important for a future where flexible work schedules and telecommuting become more common.

Research Questions and Hypotheses

Based on the research problem that was identified in the literature, the purpose that was formulated, and the job demands-resources model and media richness theory, the corresponding research questions and associated hypotheses are proposed:

Research Question 1: Is there a relationship between employee job satisfaction and attitude toward virtual workplace setting?

$H_0$1: There is no relationship between employee job satisfaction as measured by the Job Satisfaction Survey and attitude toward virtual workplace setting as measured by Clark et al. (2012) instrument.

H_a1: There is a relationship between employee job satisfaction as measured by the Job Satisfaction Survey and attitude toward virtual workplace setting as measured by Clark et al.'s (2012) instrument.

Research Question 2: Does leader-member communication moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting?

$H_0$2: Leader-member communication as measured by Leader-member Exchange instrument (Graen & Cashman, 1975) does not moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting.

H_a2: Leader-member communication as measured by Leader-member Exchange instrument (Graen & Cashman, 1975) moderates the relationship between employee job satisfaction and attitude toward virtual workplace setting.

Research Question 3: Does leadership style moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting?

H_03: Leadership style as measured by the Multifactor Leadership Questionnaire (Avolio, Bass, & Jung, 1995) does not moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting.

H_a3: Leadership style as measured by the Multifactor Leadership Questionnaire (Avolio et al. 1995) moderates the relationship between employee job satisfaction and attitude toward virtual workplace setting.

I did not explore links between demographic variables and job satisfaction or attitude towards virtual workplace settings as there was previous research that demonstrating that there are no significant links between demographic variables and job satisfaction (Johnson, 2016).

Theoretical Framework for the Study

The theoretical frameworks for this study were Bakker and Demerouti's (2007) job demands-resources model and Daft and Lengel's (1986) media richness theory. The job demands-resources model was relevant to the study because of the recognition that there are different factors that can positively or negatively affect the well-being of employees (Bakker & Demerouti, 2007). The job demands-resources model pertains to the positive and negative factors that affect the well-being of employees in organizations

(Bakker & Demerouti, 2007). Within this framework, job demands are any physical, psychological, social, or organizational factors that can strain or negatively affect the performance of employees such as work pressure. Conversely, job resources are any factors that can positively affect the performance of employees, such as the availability or absence of organizational resources (Bakker & Demerouti, 2007). The resulting assumption was that factors such as leadership style and leader-member communication are factors that can affect the job satisfaction of employees and their attitudes toward the virtual workplace.

Media richness theory was relevant to the study because of the distinction generated regarding the communication channels between traditional and virtual employment settings, which can affect how employees communicate with their managers (Daft & Lengel, 1986). Media richness theory addressed the communication barriers associated with virtual reality and differences in communication media that result from a lack of transmission of social cues in virtual workspaces (Daft & Langel, 1986). This theory demonstrated that multisensory personal communication of the kind possible in traditional workplaces is often more capable of effectively conveying meaning (Daft & Lengel, 1986). However, the theory also posited that a match between a virtual communication medium (e.g., phone call, email, texting, or video conference) and a given task can increase the likelihood that messages will be transmitted successfully. This theory relates to the effectiveness of virtual communication by emphasizing the importance of a match between communication medium and task. The media richness theory was used as theoretical lens through which the problem was framed and the results

were interpreted, leading to the assumption that leader-member communication in virtual workplace settings can significantly affect the relationship between employee job satisfaction and attitude toward virtual workplace.

Nature of the Study

A quantitative correlational research design was used to examine if employee job satisfaction predicts attitude toward virtual workplace setting and if this relationship is moderated by leader-member communication and leadership style. The independent variable was job satisfaction, the dependent variable was attitude toward virtual workplace setting, and the moderating variables are leader-member communication and leadership style. A quantitative correlational research design was appropriate because the focus of the study was on measuring variables in order to determine the strength of their relationship with each other. The operationalization of variables into quantitative values and the use of statistical tools to determine the relationship of variables are needed to address the research questions of the study. Correlational research design was used to determine relationships between and among variables, that is, the association between the dependent and independent variables (Bordens & Abbott, 2002; Hopkins, 2008; Rumrill, 2004).

Definitions

Communication technology: Any technology used for communication between virtual team members and includes communication forms such as email, online chat platforms, video conferencing, and telephone communication.

Job satisfaction: The affective or emotional response that employee has toward their job. Job satisfaction is an emotional response to an employee's expected job outcomes as compared to their actual job outcomes. Job satisfaction is not a behavior, but a description of an employee's feeling towards a job (Mawhinney, 2011).

Passive-avoidant leadership: Leadership where leaders shy away from important decisions and abstain from taking an active role in leadership (Horwitz et al. 2008).

Telecommuting: The act of working away from a conventional workplace, usually from home, and communicating with the workplace and coworkers using computer-based technology (Allen, Golden, & Shockley, 2015).

Transactional leadership: The use of contingent rewards and a quid quo pro manner to motivate employees (Tarsik et al., 2014)

Transformation leadership: A leadership style that motivates staff to problem solves and work to their own potential based on inspirational motivation (Tarsik et al., 2014).

Virtual worker or telecommuter: According to Carter et al. (2014), individuals or teams of individuals [in the case of virtual teams], from different cultural and geographic backgrounds reliant primarily on communication technology as their means of interacting with other team members, their virtual team leader, and others within the organization. There is a lack of agreement on the specifics of the terms of virtual worker, telecommuter, and teleworker (Barber & Santuzzi, 2015; Hoch & Kozlowsi, 2014; Irby, 2014); therefore, they will be used interchangeably with the one meaning throughout this analysis.

Virtual workplace: Groupings of consultants, contractors, and employees that operate remotely from each other and from managers. Virtual workplaces are composed of virtual workers who operate from a mobile or home office (Cascio, 2000).

Assumptions

The first assumption of this analysis was that subjects reported answers to survey instruments truthfully. There was the chance that virtual employees felt pressured to provide certain answers or did not respond truthfully to survey instruments if they felt that their employer may have access to the study results. All subjects were reassured that their answers to survey instruments were collected completely anonymously and that no information gathered in this analysis was provided to their leader or employer.

The second assumption of this analysis was that there are no confounding impacts of demographic variables in this analysis. Although demographic variables were collected, they were not be analyzed except for providing summary details of the sample. Inclusion of categorical demographic variables in regression modelling also greatly increased the require sample size required for this analysis; therefore they were not included in analysis. There was previous research that demonstrates that there are no significant links between demographic variables and job satisfaction (Johnson 2016), supporting this assumption.

Scope and Delimitations

The scope of this project was restricted to men and women who have worked in a virtual workplace setting either part-time or full-time for at least 6 months. This removed the impact that any transition period to virtual work had on job satisfaction or perception

of virtual work. The study was restricted to only collecting information from virtual workers and not from virtual worker leaders. The study also only recruited subjects who were part of small virtual teams. This was to reduce the effect of confounding due to different team sizes and team dynamics. If many subjects were from the same few teams, there may have been confounding effects due to team dynamics independent of the leader, which affect job satisfaction or perception of virtual workplaces. This study would not be able to statistically control for these effects due to subject data being collected anonymously. Additionally, there could have been confounding effects from having different sized teams. Ideally, the study collected a sample of only one subject from each team but this was not practical for reaching the desired sample size of the study. Therefore, the study aimed to collect data from subjects from small teams of two to three people so team sizes were comparable.

Finally, the study was restricted to companies and employees that were located entirely within the United States. It was likely that virtual worker teams with members located in different countries may have additional issues affecting job satisfaction and perception of virtual work due to differences in time zones of team members or differences in team member culture, and these additional multi-national variables are not assessed in this study (Johns & Gratton, 2013; Pinjani & Palvia, 2013). Therefore, the study was restricted to only teams entirely within the United States to reduce the confounding effects of these aspects on study results.

Limitations

This study has several limitations. As data were collected anonymously from subjects, there was no way of determining which subjects are part of the same team within companies or are rating the leadership style of the same leader. Workers who are in the same team may also experience work-related aspects, which are independent of their leader but related to the composition of their team. This may impact their assessment of job satisfaction, perception of virtual work, and leader-member communication. For example, one team may get along very well, resulting in this team having higher job satisfaction and perception of virtual workplace that was independent of their leader. This statistically creates an effect called *clustering* where subjects within a cluster have correlated errors, and subjects in different clusters have independent errors (Cameron, Gelbach, & Miller, 2011). Clustering cannot be disentangled by this analysis using statistical or research methods as methods to identify subjects of the same teams may compromise anonymity.

Additionally, this study only included subjects in the United States workforce. As of 2010, the percent of U.S. workers who work from home has steadily increased since 1999, with 4.2 million more people working from home as compared to 10 years before (U.S. Census Bureau, 2012). Due to these large and steady increases of virtual work cultures in the United States, it was appropriate to examine the dynamics of virtual work force cultures in the United States specifically. International virtual work cultures may be different than those bound within the United States due to cultural and linguistic

differences (Klitmoller & Lauring, 2013); therefore, generalizability of this analysis was limited to virtual work cultures within the United States.

Significance

This study was significant in its ability to illuminate the factors that may impact job satisfaction of employees working in virtual settings. The results of the study may help leaders enhance employee satisfaction in virtual workplace environments. Even though past researchers have generally indicated that employees who work in virtual settings have high job satisfaction (Sardeshmukh et al., 2012), other factors also contribute to the job satisfaction of employees such as leader-member communication and leadership style (Irby, 2014; Loi et al., 2014). The results of the study can provide insights on how leader-member communication and leadership style influence the job satisfaction of employees working in virtual workplace settings.

The results of the study also have implications for positive social change. A deeper understanding of the different leadership and communication factors that telecommuters are exposed to in virtual workplaces can lead to a better understanding of their job satisfaction, and in turn their attitude towards their virtual workplace (Greer & Payne, 2014). Understanding how attitude towards virtual workplaces are shaped could provide key clues to encourage positive experiences for future virtual workers as virtual workplaces become more common into the future.

Summary

The purpose of the quantitative study was to examine if employee job satisfaction predicts attitude toward virtual workplace setting and if this relationship is moderated by

leader-member communication and leadership style. The independent variable was employee job satisfaction, the dependent variable was attitude toward virtual workplace setting, and the moderating variables are leader-member communication and leadership style. Relationships between variables were be explored using correlation and regression based techniques to explore the relationships between variables, while controlling for moderating variables. Upwards of 61% of organizations with greater than 500 employees engage in the use of virtual workers and teams (Schmidt, 2014). The results of the study may benefit these companies and may help leaders enhance employee satisfaction in virtual workplace environments. The following chapter will present a thorough review of the current state of research in this topic.

Chapter 2: Literature Review

Introduction

According to results from researchers, participants who were working in virtual settings reporting increased levels of job satisfaction irrespective of demographic attributes or characteristics (Johnson, 2016). However, according to Allen et al. (2015), the highest levels of job satisfaction are reported from individuals who telecommute often compared with individuals who telecommute rarely or daily (p. 45).

These positive perceptions were associated—in part—with the result of increased flexibility and autonomy and decreased work pressure from leaders (Sardeshmukh et al., 2012). Specifically, leadership in virtual workplace settings is frequently characterized as less hierarchical in nature and more shared within a team, a style associated with higher subordinate job satisfaction (Hoch & Kozlowski, 2014; Skogstad et al., 2015). Despite these benefits, significant problems confronting leadership in virtual workplace settings is that effective communication remains and leaders experience difficulty in motivating their members and managing teams in these settings (Hoch & Kozlowski, 2014; Lockwood, 2015). Kirkman et al. (2004) reported there is a challenge in the marketplace today, as many of today's managers and supervisors are maladjusted to function efficiently in the leadership role in today's virtual workforce.

As evidenced herein, intangible organizational constructs, such as leader-member communication, relate to employee job satisfaction (Loi et al., 2014). Furthermore, a significant number of employees in the United States telecommute for work (Irby, 2014). Therefore, due to the enhanced impact to virtual workers based on the presence or lack of

intangible organizational constructs, studying the precise relationship between leader-member communication and job satisfaction in the context of the virtual workplace is an important need to assure organizational continuity in today's competitive marketplace. In fact, leadership in the virtual workplace is generally flatter rather than that represented in the traditional hierarchical organization chart. For example, leadership in the virtual setting is often shared within a team through team leaders rather than line-direct managers or supervisors (Kirkman et al., 2004). However, the virtual environment is one where many current organization leaders are unaware of the strengths, perceptions, or merits associated with this newer workplace structure and setting (Hock & Kozlowski, 2014; Kirkman et al., 2004; Lockwood, 2015). This is representative of an even greater challenge, as many of today's organizational leaders are unaware of the unique characteristics and motivational associations imputed to any particular intangible construct related to the maintenance of employee satisfaction (Hoch & Kozlowski, 2014; Kirkman et al., 2004; Lockwood, 2015).

Information-rich evidence is essential for the development of effective management and leadership strategies to meet the requirements of one of the fastest growing segments within organizations: the virtual workforce (Irby, 2014). However, there was a scarcity of evidence regarding the role of leadership style and leader-member communication in the virtual workplace (Dahlstrom, 2013). Furthermore, researchers conducted an insufficient number of studies that seek to explore the ways that leadership style and leader-member communication may moderate observed relations between employment in a virtual workplace and job satisfaction.

Purpose

The purpose of the quantitative study was to examine if employee job satisfaction predicts attitude toward virtual workplace setting and if this relationship is moderated by leader-member communication and leadership style. A correlational research design was used to address this gap and data analysis was conducted using regression and moderation analysis. The dependent and moderating variables were measured using the data collected from standardized survey questionnaires.

Search Strategy

The goal of the current review of literature was to investigate existing published evidence and present a report of findings in an unbiased manner. Therefore, a comprehensive search of the literature evidencing current academic evidence related to virtual team leadership and job satisfaction was performed. Electronic databases accessed included PsychArticles, Business Source Premier, PsycNet, JSTOR, Science Direct and Google Scholar. Search strings used include *virtual teams, virtual team employee satisfaction, virtual team leadership, virtual team barriers to satisfaction, virtual team barriers to leadership, virtual team diversity, virtual team communication, virtual team technology* and *best practices leadership*. Additional articles were also retrieved from articles identified in primary searches with related article links. In order to provide a review of the most current evidence relevant to the dissertation topic, 83 (83%) articles were retrieved from 2012 forward, with the remaining 17 (17%) selectively included from prior years.

Theoretical Foundation

The theoretical framework for this study was Daft and Lengel's (1986) media richness theory. Media richness theory was foundational to the study because of the distinction of the communication channels between traditional and virtual employment settings, which can affect how employees communicate with their managers (Daft & Lengel, 1986). However, this was supplemented with Bakker and Demerouti's (2007) job demands-resources model. The job demands-resources model was relevant to the study because of the recognition that there are different factors that can positively or negatively affect the wellbeing of employees (Bakker & Demerouti, 2007).

Media Richness Theory

Media richness theory addresses the communication barriers associated with virtual environments and the differences in communication media that result from a lack of tangible social cues one would find in a traditional workplace setting, but which are absent in virtual workplaces (Daft & Langel, 1986). This theory demonstrates that multisensory personal communication is often more capable of effectively conveying meaning (Daft & Lengel, 1986). Proponents of media richness theory posit that leaders' choice of communication medium may be a modifier associated with successful leadership efforts, particularly when rich rather than lean media is utilized (Kahai & Cooper, 2003). According to researchers, "Richer media that enable face-to-face communication can provide multiple cues, taking nonverbal and verbal forms. In contrast, leaner media, such as electronic mail, enable verbal and pictorial cues but restrict the nonverbal cues that can be transmitted" (Kahai & Cooper, 2003, p. 267).

Media rich theory, therefore, promotes the need for a match between a virtual communication medium (e.g., phone call, email, texting or video conference) and a given task to enhance the likelihood that messages will be transmitted successfully. The media richness theory leads to the assumption that leader-member communication in virtual workplace settings can significantly affect the relationship between employee job satisfaction and attitude toward virtual workplace. Therefore, as effective leader communication is associated with increased job satisfaction (Lam & O'Higgins, 2012; Shurbagi, 2014; Tse & Chiu, 2014; van Dierendonck, Stam, Boersma, de Windt, & Alkema, 2014), particularly in the virtual setting (Avolio, Sosik, Kahai, & Baker, 2014; Cogliser et al., 2013; Kock & Lynn, 2012; Ruppel, Gong, & Tworoger, 2013; Smith, 2015), it is believed that integrating the media richness theory as part of the theoretical foundation will provide an appropriate guide from which to successfully interpret results and address the research questions.

Media richness has been successfully validated and used in academic literature (Abad, Castella, Cuenca, & Navarro, 2002; El-Shinnawy & Markus, 1997; Kahai & Cooper, 2003; Treviño, Webster, & Stein, 2000). For example, Kahai and Cooper (2003) explored the impact of media rich use, compared to lean media use, on decision making. The study involved a convenience sample of 94 undergraduate university students, with results that supported rich media, and encouraged positive social and emotionally-based input, or more human qualities, into the communication process compared to leaner media. The use of rich media then fostered greater engagement in job and task requirements and enhanced decision-making based on increased perceptions of message

clarity, including whether the other individual in the communication process is truthful or deceptive (Kahai & Cooper, 2003). The type of task was also evidenced in the literature as related to the most effective choice of communication medium among team members (Abad et al., 2002). Therefore, the type of task, particularly when involving more complex or intellectual constructs, implicates the need for richer media to achieve success (Abad et al., 2002). Abad et al. (2002) also determined that media richness is associated with enhanced feelings of positivity and engagement among the group.

Additionally, in a comprehensive survey of media type and use, Treviño et al. (1997) determined that media richness was considered important, particularly when the message contained ambiguous information and when there was greater distance between parties in the communication. However, interestingly, Treviño et al. (1997) also determined that teams working together for lengthier time periods relied less on rich media than those groups working on efforts for shorter periods. Familiarity with team members, as well as the ability to understand the communication styles of others, including team shorthand, was found to compensate for richness (Treviño et al., 1997). While most academic evidence supports media richness theory, results of an effort by El-Shinnaway and Marksu (1997) failed to support the role of media richness theory when exploring the choice between e- or voice mail use.

Detailed below is the case for the job demand-resource model, whereby the model provides consistent results on a global basis (Bakker et al., 2004; Hakanen, Schaufeli, & Ahola, 2008; Xanthopoulou; Bakker, Demerouti, & Shaufeli, 2007), the same was demonstrated for the media-richness theory. Specifically, research by Abad et al. (2002)

evidenced result consistency engaging Spanish participants with research conducted in the United States (El-Shinnawy & Markus, 1997; Kahai & Cooper, 2003; Treviño et al., 2000). Given the potentially diverse nature of virtual teams, evidencing the global validity of each theory in the framework was considered paramount.

Job Demands-Resource Model

The job demands-resources model explores the positive and negative factors of a particular job, considering demands or resources that affect the wellbeing of employees in organizations (Bakker & Demerouti, 2007). Within this framework, job demands are any physical, psychological, social, or organizational factors that can strain or negatively affect the performance of employees, such as work pressure. Conversely, job resources are any factors that can positively affect the performance of employees, such as the availability or absence of organizational resources (Bakker & Demerouti, 2007). The resulting assumption is that factors such as leadership style and leader-member communication are factors that can affect the job satisfaction of employees and their attitudes toward the virtual workplace. Therefore, tying in Bakker and Demerouti's (2007) conclusions with the research questions and assumption made herein, the job-demands resource model was appropriate for engagement as part of the theoretical foundation as it provides a direction for the investigation of the current research questions regarding leadership.

The job demands-resource model has been used extensively in research (Bakker, Demeroti, & Verbeke, 2004; Hakanen et al., 2008; Llorens, Bakker, Schaufeli, & Salanofa, 2006; Xanthopoulou et al., 2007). For example, Hakanen et al. (2008)

investigated the job-demands resource model in a study by recruiting 2,555 dentists from Finland to assess health impairment processes and job motivation. Results from current research supported the job demands resource model, concluding job resources influenced engagement with work fostering increased levels of commitment to the organization, whereas job demands had a stronger correlation, albeit weak, with job burnout. A similar study was conducted by Bakker et al. (2004) with a smaller participant base (*N*=146), which determined that job demands were considered the most important predictors related to burnout, while evidence to support job resources failed to provide a mitigating role between demands and burnout. A study performed by Xanthopoulou et al. (2007) also supported the conclusion that personal resources failed to mitigate the correlation between job-related demands and burnout, the mitigating factors identified were personal (social/emotional) resources, rather than work-related ones, which offset job-related exhaustion.

The job demands-resource model has proven validity across international and occupational boundaries. For example, Llorens et al. (2006) conducted a study to compare health impairment and staff motivation in two groups of workers: 654 Spanish and 477 Dutch employees. Rigorous statistical analysis, including structural equation modeling analysis and multi-group analysis, evidenced the model's integrity (Llorens et al., 2006). Additionally, and as particularly applicable for the current dissertation effort, Llorens et al. (2006) demonstrated the model also maintained its integrity when data gathering mechanisms varied, as participants used differing procedures, including both computer and digital use as well as paper and pencil.

Whereas the media richness theory and the job-demands resource model each provide their own unique contribution to guide this study, the current composite dual-theory use will bridge the two theories, relating job resources and demands with the use of communication, particularly in the virtual environment and in relation to leadership of virtual teams. For example, the more complex the task (job demands), the greater the satisfaction level in shared leadership (Wang, Waldman, & Zhang, 2014). Similarly, Kock and Lynn (2012) determined that extensive use of electronic media for communication, and the type of media used (media-richness) in the virtual team setting was found to enhance the ability to complete complex tasks effectively, including the ability to coordinate efforts among team members (leadership). Additionally, this bridge will likely contribute to the body of knowledge about each of these theories, particularly based on their contributions to the role of communication and leadership as related to job satisfaction in the virtual environment. Thus, the researcher was specifically approaching the current study with a dual platform theoretical foundation engaging the job-demands resource theory and the media richness theory considered appropriate to successfully interpret results and address the current research questions.

Review of Relevant Literature

The literature review has its own unique goals: that of presenting a comprehensive review of current academic evidence related to leadership, virtual workers, virtual leaders, and the role of job satisfaction and communication use as associated with each construct. The successful satisfaction of this goal was also predicated on the review integrating a neutral and unbiased review of all evidence from which to draw objective

conclusions to support this study based on gaps evident in the literature retrieved, reviewed, and presented. Based on these two goals, the literature retrieved for review will follow a thematic presentation, with major thematic sections including leadership, virtual workers, attitudes toward the virtual workplace, virtual workers and information, and communication technology, leadership impact, impact of leadership on virtual staff, and virtual leadership and information and communication technology.

Leadership

Leadership is demonstrated in a variety of types, styles, and capacities. For example, Çakmak et al. (2015) demonstrated in their review of 318 articles that leadership only possessed a moderate positive association with job satisfaction; however, moderator variables identified were not only leadership approach and style, but group/sector as well, indicating that the perception of job satisfaction and leadership vary by industry and job title. Given Çakmak et al.'s (2015) findings, this section will highlight various leadership styles and approaches, with a focus on how the various styles and engagement of varied leadership skills and strategies impact job satisfaction.

There are a number of leadership strategies, types, and approaches evidenced throughout the literature about organizational management (Day & Antonakis, 2013; Lewis, 2014; Pauliene, 2013). Each specific leadership style is associated with its own set of unique attributes and impacts on staff (Pauliene, 2013). For example, transformational leadership is a leadership approach that motivates staff to problem-solve and work to their own potential based on motivation that inspires: an idealized form of admirable leadership appealing to the emotions of workers, intellectual stimulation and

individualized attention, and consideration (Tarsik et al., 2014). Transactional leadership is similar; however, transactional leaders employ charismatic elements and the use of contingent rewards in a quid pro quo manner (Tarsik et al., 2014). Key relational attributes are depicted in Figure 1 (Pauliene, 2013). Laissez-faire leaders are those who follow an approach that affords little direction to staff, fostering employee autonomy, often to the detriment of job performance (Tarsik et al., 2014). Finally, shared leadership is defined as within-team interactive and influential efforts among and between team members to foster the satisfaction of team objectives and goals (Ulhøi & Müller, 2014). The primary leadership styles that will be discussed herein are transformational, transactional, and shared.

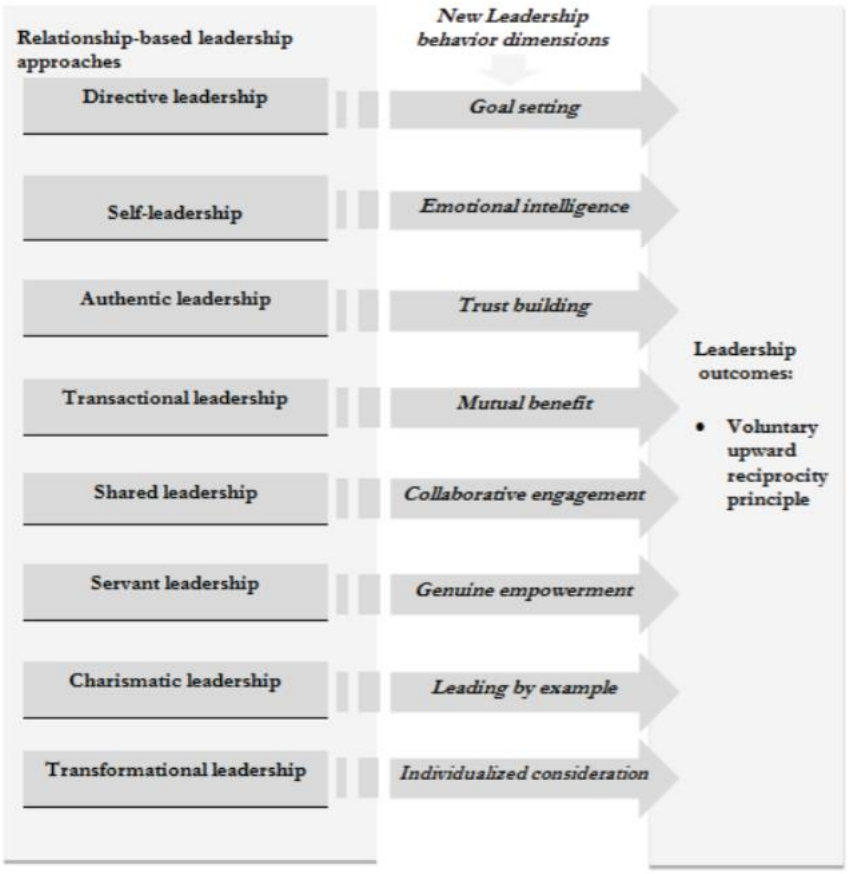


Figure 1. Leadership styles and their associated behavioral contexts. Reprinted from "A Two-way Approach of Congruent Behavior Between Leaders and Followers in the New Leadership Concept: Providing Voluntary Upward Reciprocity Principle," by R. Pauliene, 2013, Academic Journal of Interdisciplinary Studies, 2(3), 232. Copyright [2013] by the R. Pauliene. Reprinted with permission.

Transformational. One of the primary leadership styles most frequently referenced in the cited literature is transformational leadership (Choudhary et al., 2013; Grant, 2012; Lam & O'Higgins, 2012; Purvanova, 2014; Shurbagi, 2014; Tse & Chiu, 2014). Transformational leadership is associated with a variety of benefits, including increased employee satisfaction (Lam & O'Higgins, 2012; Shurbagi, 2014). For example, in a study conducted by Shurbagi (2014), 250 participants completed three previously

validated questionnaires (Multifactor Leadership Questionnaire, Organizational Commitment Questionnaire, and Job Satisfaction Survey), and determined that use of the transformational leadership style was strongly associated with an increased level of job satisfaction, however, findings also evidenced that employee commitment to the organization was a modifying variable as well.

A characteristic of transformational leaders is that they inspire and motivate workers (Choudhary et al., 2013), often relying on elements related to emotional intelligence (Lam & O'Higgins, 2012). In fact, Lam and O'Higgins (2012) found transformational leadership was a modifying variable when associating employee performance as related to the leader's level of emotional intelligence in a quantitative study of 323 managers and subordinates in China. Transformational leadership evidence increased levels of organizational commitment (Shurbagi, 2014) and is prosocial, whereby interacting with the beneficiaries of transformational leadership enhances their motivation (Grant, 2012). The prosocial characteristic, in turn, was evidenced in the literature as not only enhancing team performance overall, but increasing the level of interaction between teammates (Purvanova, 2014). Purvanova's (2014) findings relative to transformational leadership fostering enhanced team interaction and performance were also found consistent whether leading face-to-face or virtual teams.

Tse and Chiu (2014) determined that the impact of transformational leadership on team identification is different than it manifests in the individual, particularly in reference to organizational commitment and creativity. Based on a study conducted in the banking industry in China, researchers recruited 250 employees and managers in quantitative

research effort to measure levels of transformational leadership, group identification, creative behavior, organizational citizenship, and creativity using prevalidated instruments for each construct. Figure 2 represents the model of transformational leadership at the group and individual level that represents Tse and Chiu's hypotheses. Based on the results detailed above, the model also represents their findings. Researchers concluded that leadership skill training should incorporate the differences between leading the individual and leading the group, as each requires a distinct approach. For example, when creativity is required, the leader should promote intellectual stimulation at the individual level (Tse & Chiu, 2014).

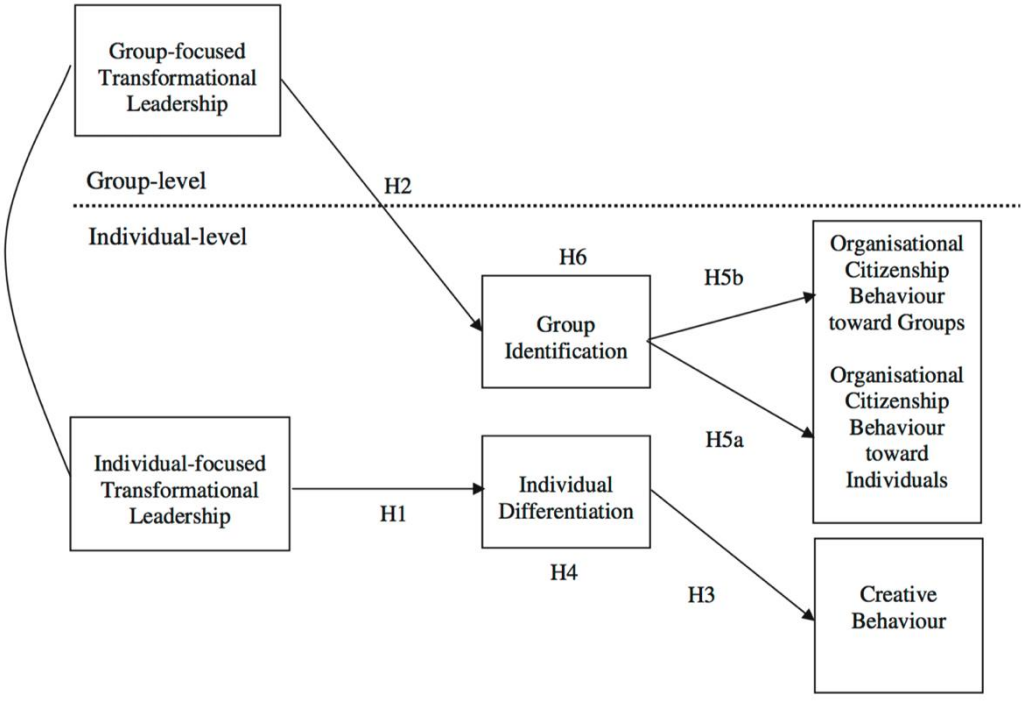


Figure 2. Transformational leadership impact on groups compared to individuals. Adapted from "Transformational leadership and job performance: A social identity perspective" by H.M. Tse, & W. C. Chiu, 2014, *Journal of Business Research, 67,* 2827-2835. Copyright 2014. Adapted with permission.

Transformational leadership is more effective in cultures focusing on a collectivist mindset, whereas charismatic leadership (motivating by enthusiasm for a shared vision), is more effective in cultures fostering an individualistic mindset (Mittal, 2015). Findings of Mittal's study detailing the association found between culturally loose compared to tight societies and leadership preferences is provided in Figure 3 (Mittal, 2015), and will be discussed in greater detail in later sections related to findings of a study by Aktas et al. (2015). However, the concept of societal frames of reference are important considerations regarding the discussion of transformational leadership, as theories regarding leadership and leadership development have virtually ignored issues relating to cultural diversity (Day & Antonakis, 2013).

	Loose Societies	**Tight Societies**
Individualistic Cultures	1. Charismatic Leadership	2. Mixed Leadership
Collectivistic Cultures	3. Mixed Leadership	4. Transformational leadership

Figure 3. Preferred leadership style based on tight versus loose society. Adapted from "Charismatic and transformational leadership styles: A cross-cultural perspective" by R. Mittal, 2015, *International Journal of Business and Management*, *10*(3), 26-32. Copyright 2015. Adapted with permission.

The ability for the transformational leader to establish cognitive trust was viewed as necessary but not pivotal to an increase in team performance, which was viewed as more important among and between team members (Chou, Lin, Chang, & Chuang, 2013). Although one might perceive that trust is an essential issue in effective leadership,

findings by Chou et al. (2013) have been corroborated by additional current evidence. For example, a study of 211 Arab teachers in the Middle East, conducted by Nasra and Heilbrunn (2015) determined that transformational leadership had a direct impact on level of organizational commitment, whereas trust was not seen as a modifying variable. Similarly, based on 360 participants across 39 teams, Braun et al. (2013) determined that trust was not a moderating factor related to team perceptions related to transformational leadership and perceived job satisfaction. However, Braun et al.'s findings were different when assessing the value of trust at the individual level, where findings demonstrated a strong relationship between higher levels of trust as related to increased levels of job satisfaction based on transformation leadership.

Transformational/transactional paradigm. Extraversion is a dominant characteristic of transformational leaders (Bono & Judge, 2004), and applies to transactional leaders as well (Adler & Reid, 2016). In fact, both transformational and transactional leadership strategies were evidenced in the literature as promoting enhanced levels of job satisfaction (Adler & Reid, 2016). However, the two types of leadership strategies are significantly different in relation to the manner in which leaders interact with their staff. For example, according to Adler and Reid (2016), whereas the transactional leader leads on a perceived basis of reciprocity and reward systems, transformational leaders are supportive from an altruistic standpoint (Ruggieri, 2009) Furthermore, transformational leaders find they are more personally and professionally satisfied than transactional leaders (Ruggieri, 2009). However, the effects of the traditional transformational/transactional paradigm can be overshadowed by leadership

dimensions, including environmental monitoring, path-goal facilitation, strategy formulation, and outcome monitoring (Rowold, 2014).

Whereas the transformational/transactional paradigm has been discussed as both demonstrating and engaging approaches, the transformational leadership style has also been compared to other styles in the literature. For example, transformational leadership can be compared to servant leadership. Transformational leadership fosters enhanced organizational learning, particularly when compared to servant leadership, which focuses on establishing relationships with subordinates and focusing on their welfare through altruistic means (Choudhary et al., 2013). Rather, transformational leadership works through leadership principles, whereas servant leadership is primarily based on satisfying worker needs (van Dierendonck et al., 2014). However, there are other leadership styles that are germane to any discussions about face-to-face or the virtual workplace, such as shared leadership.

Shared leadership. A positive association between shared leadership and enhanced team performance was evidenced in the literature (Hoch, Pearce, & Weizel, 2010; Wang et al., 2014). In fact, based on a literature review of 271 articles, shared leadership, often referred to as *distributed leadership*, represents increased levels of staff participation in decision-making, including enhanced knowledge sharing and increased within-team discussions (Ulhøi & Müller, 2014). Ulhøi and Müller (2014) posited that shared leadership is a method of increasing organizational innovation because of enhanced levels of creativity, particularly among diverse groups of individuals. Collectively, Ulhøi and Müller (2014) reported that shared leadership is a method of

increasing employee responsibility that fosters an increase in employee engagement, empowerment, and satisfaction, which, in turn, yields increased levels of effectiveness at the organizational level. To achieve optimal shared leadership results, as explained above, Ulhøi and Müller (2014) proposed the model depicted in Figure 4 below, detailing the requisite endogenous, exogenous, and agency antecedents of effective shared leadership, the five types of shared leadership within the organizational structure and the series of outcomes; all related on an interactive basis.

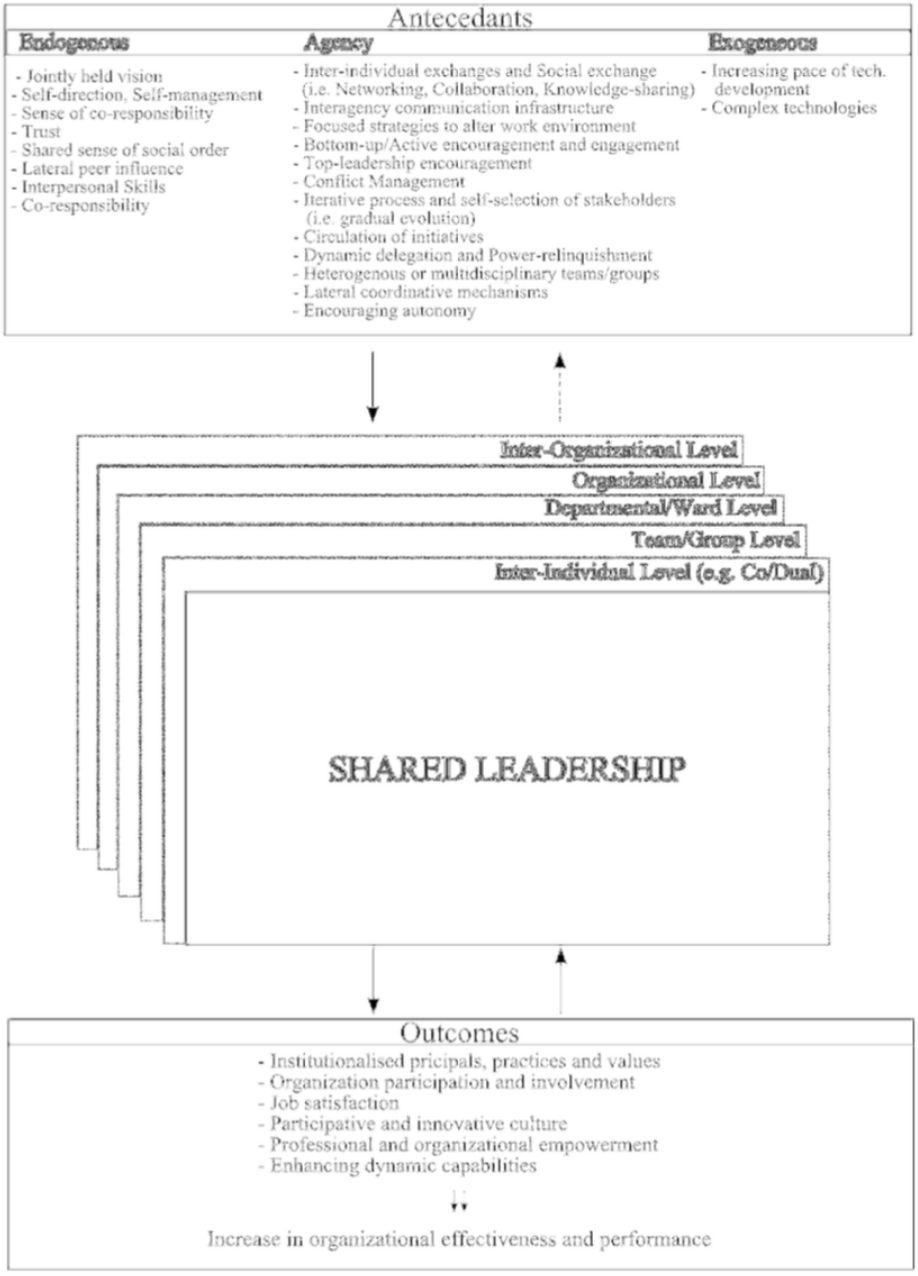


Figure 4. Shared leadership antecedents and outcomes. Reprinted with permission "Mapping the landscape of shared leadership: A review and synthesis" by J. P. Ulhøi, & S. Müller, 2014, *International Journal of Leadership Studies, 8*(2), 66-87. Copyright 2014. Adapted with permission.

Norback and Small (2015) determined that shared leadership coaching decreased the negative impact of cultural diversity in virtual teams. Based on 63 interviews of

virtual team members and leadership, results evidenced that shared leadership naturally emerged as team member dependence increased and can be facilitated through effective hierarchical leadership strategies, for example, fostering increased team interaction and communication including instilling the perception in and among members that their voice matters (Norback & Small, 2015). In fact, giving members a voice was found to mitigate challenges inherent in culturally diverse teams by fostering an interdependent atmosphere within the team (Norback & Small, 2015).

Shared leadership paired with increased levels of team commonality increased worker and job satisfaction; however, commonality was found to be more critical for teams working in the face-to-face traditional worker style compared to the level of importance in the virtual setting, where communication and commonality were found to have a symbiotic relationship (Drescher & Garbers, 2016). Additionally, when shared leadership is paired with increased trust, the virtual worker's perception of job satisfaction increases (Robert & You, 2013). Robert and You (2013) also determined that shared leadership was perceived as synonymous with increased levels of trust. This notion enabled researchers to conclude that trust or shared leadership within groups can foster increased satisfaction at the individual level. However, while shared leadership was determined to increase creativity within the team (Peter, Braun, & Frey, 2015), this leadership style was not associated with level of team performance when age and coordination were evidenced as higher (Hoch et al., 2010), whereas the type of information teams worked with was found to be a modifying variable to team performance and satisfaction in the shared leadership environment (Wang et al., 2014). In

fact, Wang et al. (2014) determined that the more complex the task, the greater the satisfaction level in shared leadership.

Evidence presented herein suggests that shared leadership has a multitude of advantages (Norback & Small, 2015; Robert & You, 2013; Ulhøi and Müller, 2014). However, shared leadership is not used as often as one would expect. For example, a study using retrospective data from 96 virtual teams from 36 software development companies demonstrated that upwards of 50% of managers underestimate their teams' capacity to engage in shared leadership (Hoegl & Muethel, 2016). This lack of confidence displayed by organizational management in turn was associated with degradations in team performance (Hoegl & Muethel, 2016).

Culturally-influenced leadership style variables. Often, researchers evidenced leaders and leadership as general constructs, irrespective of leadership style, when conducting studies. For example, Winsborough and Hogan (2014) determined that leaders, as a group, displayed similar personality constructs, despite global location and cultural differences. Furtner, Baldegger, and Rauthmann (2012) determined that when leading themselves, leaders of others are more likely to engage in active leadership styles, such as transformational or transactional, rather than passive approaches, such as laissez-faire. Similarly, when controlling for leadership styles including transactional, transformational, and laissez-faire, instrumental leadership traits were determined to increase levels of job satisfaction (Rowold, 2014).

Whether following a transformational leadership approach or not, preference to leadership style cannot be ignored. Evidence demonstrates that leadership preference

among teams leading to the greatest level of job satisfaction, job engagement and organizational commitment is industry and position dependent (Ghorbanian, Bahadori, & Nejati, 2012; Tarsik et al., 2014). For example, in a study of 201 Malaysian university librarians, transformational style leadership strategies were most commonly engaged in, followed by laissez-faire leadership (Tarsik et al., 2014). However, position and years of experience were viewed as moderating variables between transactional and transformational leadership preferences (Tarsik et al., 2014). Among emergency medical workers, transformational management style is related to the strongest level of job satisfaction, whereas a laissez-faire leadership style was associated with the weakest ratings of job satisfaction (Ghorbanian et al., 2012).

Quality of an initial leader-member exchange is a modifying variable for assessment of leadership satisfaction and interventions (Scandura & Graen, 1984). For example, leadership style tends to develop based on the individual leader's text-based communication style (Charlier, Stewart, Greco, & Reeves, 2016). When the initial exchange was positive, and exchanges are minimal, job satisfaction, satisfaction with the leader, and productivity gains were present (Scandura & Graen, 1984).

Not all leadership, however, results in job satisfaction or evidences the successful leader. For example, Mathieu, Neumann, Hare, and Babiak (2013) evidenced a dark leadership triad. Specifically, the dark leadership triad (narcissism, psychopathy, and Machiavellianism) led to job dissatisfaction, increased work-family conflicts, and elements of psychological dysfunction in employees (Mathieu et al., 2013). Similarly associated to the dark leadership triad is the concept of tyrannical leadership. Tyrannical

leadership was associated with decreased job satisfaction, whereas laissez-faire leadership was correlated with an increase in job satisfaction among workers (Skogstad et al., 2015).

Leadership Impact

A number of studies evidenced the impact of leadership when explored as one of several features related to job performance or job satisfaction (Aktas et al., 2015; Braun et al., 2013; Cogliser et al., 2013). For example, correlating job satisfaction, transformational leadership, team performance, and level of trust in both supervisor and team member in a large study of 360 employees across 39 different scholarly groups evidenced increased levels of job satisfaction as associated with transformational leaders; this was identified at both the individual and group level (Braun et al., 2013). Trust was viewed as a modifying variable; however, this only related to leader-related trust as a modifier for job satisfaction (Braun et al., 2013). However, as evidenced by findings from within the literature, often there are culturally modifying variables (Aktas et al., 2015; Lewis, 2014). This was detailed in a study of 6,823 workers and 15,247 managers from 62 cultures, cultural tightness was associated with workers who favored leaders who promoted individual worker autonomy, whereas the same cultural tightness was perceived as negative for team leadership (Aktas et al., 2015). These findings held across distance (Aktas et al., 2015).

Impact of leadership on virtual staff. Whereas the impact of leadership in the face-to-face environment has been researched for decades with effective skills and skill profiles discussed herein, (Çakmak et al., 2015; Choudhary et al., 2013; Day &

Antonakis, 2013; Grant, 2012; Lam & O'Higgins, 2012; Lewis, 2014; Pauliene, 2013; Purvanova, 2014; Shurbagi, 2014; Tse & Chiu, 201), leadership of virtual teams requires a unique set of skills (Carter et al, 2014). For example, evidence suggested whereas extroversion, cognitive ability, self-efficacy, and leadership emergence are moderated in the virtual setting when compared with the face-to-face environment, density of the leader's network ties moderates the impact of these constructs (Serban et al., 2015). The relationship constructs are graphically presented in Figure 5 below.

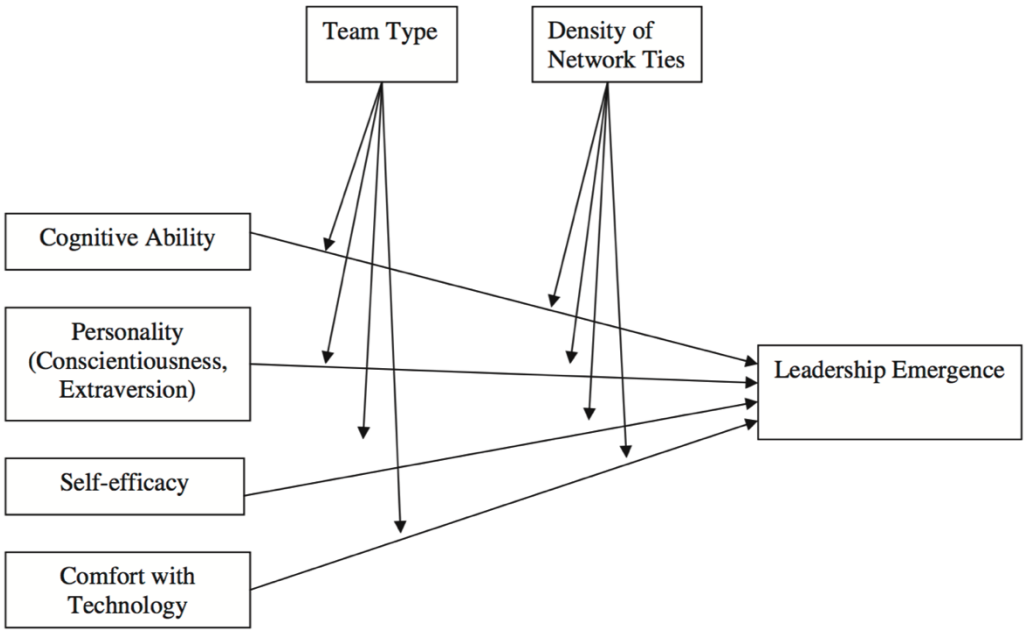


Figure 5. Model of leadership emergency in face-to-face and virtual teams. Adapted from "Leadership emergence in face-to-face and virtual teams: A multi-level model with agent-based simulations, quasi-experimental and experimental tests," by A. Serban, F. J., Yammarino, S. D., Dionne, S. S., Kahai, C., Hao, K. A., McHugh, ... & D. R., Peterson, 2015, *The Leadership Quarterly*, *26*(3), 402-418. Copyright 2015. Adapted with permission.

Leadership and communication. The impact of leadership on member and team performance, and perceptions of job satisfaction were also evidenced within the literature

as correlated or moderated by the choice of electronic media used for communication; it was also related to the transformational leader qualities of emotional stability as well as extraversion (Balthazard. Waldman, & Warren, 2009). However, beyond media type choice, use of specific communication skills was also deemed significant to effective leadership. Specifically, constructive and encouraging use of language was demonstrated as more effective for leaders who seek to inspire (Fan, Chen, Wang, & Chen, 2014). In fact, both motivational language and the provision of feedback through email were perceived differently by virtual team members based on type of language used by leaders (Fan et al., 2014). Fan et al. (2014) determined that virtual team members provided with specific directions displayed enhanced levels of creativity and generated a greater number of ideas when a feedback was demanded, whereas those who were provided instructions that used language perceived as more empathetic were more creative when feedback was encouraged, rather than demanded.

Virtual leadership style. Virtual leadership is defined as the supervision of teams that perform work in a distributed environment, whereby members coordinate their work through the use of electronic communication media (Kerfoot, 2010). As evidenced above, current literature demonstrated that there are significant differences in leadership skills required to foster increased levels of job satisfaction and performance in virtual teams compared to traditional teams in the face-to-face setting (Carter et al., 2014; Serban et al., 2015). For example, transformational leadership characteristics were found more important in the face-to-face setting rather than among workers in the virtual realm (Balthazard et al., 2009); however this was disputed in evidence from Bogler, Caspi, and

Roccas (2013), who determined that job satisfaction was enhanced when leaders were transformational.

Notwithstanding leadership approach, as evidenced for transformational (Balthazard et al., 2009), individual leadership attributes were also demonstrated as important in the virtual realm. For example, task-oriented leaders predicted higher levels of team performance (Cogliser, Gardner, Gavin, & Broberg, 2012). Additionally, those leaders of virtual teams who exhibited increased socially-oriented behaviors were viewed by both teams and individual team members more positively, which, in turn, correlated with perceptions of trust within the team (Cogliser et al., 2012).

Virtual team leadership style was also viewed as more important than the tangible variables an effective leader can offer their team (Bogler et al., 2013). However, it is also considered a virtual leadership responsibility to enable the worker has the proper tools with which to effectively perform their tasks (Carter et al., 2014). Additionally, virtual team leaders must be flexible, as the demands of leading virtual teams literally change from project to project as the team composition does (Nydegger & Nydegger, 2010).

Construct of relationships and relationship building within the virtual environment is another key attribute in the virtual leadership→job satisfaction→job performance paradigm (Hoch & Koslowski, 2014; Schmidt, 2014). Specifically, virtual leaders must foster relationship building as a success strategy (Schmidt, 2014). This was further evidenced as a key construct related to virtual leadership based on a study by Hock and Koslowski (2014). Participants from 101 virtual teams (*N*=565 virtual workers) were asked to complete a questionnaire comprised of items from previously validated

questionnaires to assess hierarchical leadership, structural supports, information and communication management, shared leadership, team performance, and degree of team virtuality (Hoch & Koslowski, 2014). Results determined that shared leadership was positively associated with enhanced levels of team performance, irrespective of virtuality, whereas degree of virtuality modified the relationship between team performance and hierarchical models of organizational leadership and management (Hoch & Koslowski, 2014).

Training for virtual leadership was also reported within the literature as important, whether formal or information (Colfax, Santos, & Diego, 2009; Iorio & Taylor, 2015). In fact, as little as 3 months of prior leadership experience impacts the manner in which the virtual leader performs, thus fostering greater association with specific leadership typologies (Iorio & Taylor, 2015). However, from a formal training standpoint, evidence provided by conclusions within the literature emphasized that generalized leadership training does not effectively transfer to leadership training for virtual team leaders, particularly when compared to the effect of prior experience (Colfax et al., 2009; Iorio & Taylor, 2015). Iorio and Taylor (2015) also correlated the concept of communication into the leadership training and job engagement hypothesizing that prior leader experience with communications media will serve as a modifying variable between experience in distributed teams as well as situation-based levels of awareness. This is related positively on interactions related to troubleshooting. Based on responses from 20 college students at the masters' level assigned to four virtual tasks to simulate project team real-world experiences, results determined that virtual team leaders' prior experience fosters greater

association with specific leadership typologies engaged (Iorio & Taylor, 2015). Additionally, virtual employee engagement is moderated by the type of technology employed (Iorio & Taylor, 2015). Findings also evidenced that generalized leadership training does not effectively transfer to leadership training for virtual team leaders, particularly when compared to the effect of prior experience (Iorio & Taylor, 2015).

The creation of a learning environment was also viewed as important within the virtual team, as a by-product of leader performance, as the virtual leader was viewed as responsible for fostering or deterring the learning environment (Pinar, Zehir, Kitapci, & Tanriverdi, 2014). For example, task orientation and relational leadership impacts team learning (Pinar et al., 2014). Additionally, a strong relationship exists between internal and external learning and virtual team performance (Pinar et al., 2014). Researchers also demonstrated that external learning was related to task- and change-oriented leadership in virtual teams (Pinar et al., 2014). Therefore, it can be summed up that a multifaceted inter-relatedness exists between performance of virtual teams, their leadership, and the learning that transpires (Pinar et al., 2014).

One study retrieved from within current search parameters was from Verburg, Bosch-Slijtsema, and Vartianen (2013), who sought to explore the specific conditions and critical success factors associated with virtual team performance. Results from 30 virtual project managers from across five industrial verticals that participated in qualitative face-to-face interviews with analysis based on a means-end-chain theoretical framework determined that critical success factors associated with virtual project leadership include clear communication, goal setting, effective project management and leadership styles,

project management competence (as perceived by the team), and trust in the team (Verberg et al., 2013). Furthermore, project managers stressed the need for organizational and technical support throughout the project process (Verberg et al., 2013). Job requirements for the virtual leader also vary slightly, particularly in relation to communication and the perceptions upon team members of the need for an immediate response. This is particularly important in the geographically-distributed setting. For example, virtual leaders, by virtue of the geographic diversity of teams, must be available 24/7 to respond to needs of virtual workers and teams (Greer & Payne, 2014; Kerfoot, 2010).

Virtual Leadership in Information and Communication Technology

Evidence related to both virtual leadership and information and communication technology was scarce. However, several research efforts were available that contributed commentary on the subject (Duranti & de Almeida, 2012; Lockwood, 2015; Schmidt, 2014). For example, Schmidt (2014) demonstrated that effective virtual leadership required communication between teams, individuals, and the virtual leader to occur with greater frequency than in traditional face-to-face office settings. Malhotra and Majchrzak (2014) also studied the potential for team success in relation to the use of information and communication technology compared with face-to-face discussion, with researchers suggesting that electronic communication is inhibitory in the virtual worker environment, further suggesting that situational awareness needs to be integrated into the selection of type of communication medium. Researchers who hypothesized the use of specific information and communication technologies based on situation needs provided evidence

for increased team performance (Malhotra & Majchrzak, 2014). Results based on 54 virtual teams that were widely dispersed and who relied strictly on information communication technologies as their means of communicating with team members were queried regarding team performance and perception of task uniqueness using validated instruments, as were questions related to the use of information communication technologies for knowledge and presence awareness (Malhotra & Majchrzak, 2014). Results demonstrated that selection of communication technology type has a significant impact on team performance, particularly based on the selection as most appropriate to the task (Malhotra & Majchrzak, 2014). Furthermore, Malhotra and Majchrzak (2014) concluded that whereas team and member reliance on the use of technology for communication can be perceived as negative, it is essential that degree of use be separated from type of use considering this construct, as one may be negative. Researchers believe that whereas each could be viewed as either positive or negative, there could be modifying variables influencing the perception of positivity or negativity, and it is possible that positive or negative perceptions about the use and reliance on information and communication technologies can fluctuate (Malhotra & Majchrzak, 2014).

Lockwood (2015) also evidenced the potential challenge of engaging the use of information and communication technology by leaders in the virtual environment, highlighting they can easily fall prey to communication misunderstandings due to cultural diversity without the benefit of visual and verbal cues available in face-to-face communication (Lockwood, 2015). In fact, cultural values, norms, and perceptions

significantly impacted both the type and use of specific electronic communication media, particularly in relation to communicating in a virtual environment (Duranti & de Almeida, 2012). For example, participants from the United States were more likely to prefer lower-rich tools for decision-making rather than rich tools, which were preferred by their Brazilian peers (Duranti & de Almeida, 2012). To summarize, evidence indicates the virtual leader's use of information and communication technology impacts the team (Duranti & de Almeida, 2012).

Virtual Workers

Virtual workers (Hoch & Kozlowski, 2014), often referred to as telecommuters (Irby, 2014) or teleworkers (Barber & Santuzzi, 2015) comprise a significant portion of the workforce (Irby, 2014; Schmidt, 2014). The challenge on agreement in terms (Barber & Santuzzi, 2015; Hoch & Kozlowsi, 2014; Irby, 2014) is a perfect example of a challenge within business and leadership research: the lack of a unified definition of virtual work (Allen et al., 2015). In fact, Appendix A (Allen et al., 2015, p. 43) presents a table of the various definitions and their subtle differences based on term or phrase defined. For the purposes of this literature review, the definition offered is that provided by Carter et al. (2014), as individuals or teams of individuals (in the case of virtual teams), from different cultural and geographic backgrounds rely primarily on communication technology as their means of interacting with other team members, their virtual team leader, and others within the organization. However, despite the lack of a unified definition, more than 61% of those organizations boasting more than 500

employees engage in the use of virtual workers and teams (Schmidt, 2014). Appendix B lists leadership styles by county.

Virtual teams function differently than face-to-face teams (Gera et al., 2013). Gibson, Huang, Kirkman, and Shapiro (2014) call the meeting of the two as the intersection of organizational dynamics, as virtual and organizationally global constructs intersect. In fact, virtual work is often complex, with team members often assigned to more than one project or work effort (Cummings & Haas, 2012; Schmidt, 2014), thus the individual must effectively allocate their time (Cummings & Haas, 2012). For example, research on 2,055 individuals comprising 285 teams from a large international organization determined that time allocation to tasks, teams, and projects is related to enhanced team and job performance in focal rather than virtual teams, as well as those who allocate their time to multiple concurrent projects (Cummings & Haas, 2012). Additionally, time allocated to tasks was also evidenced as having a stronger effect on level of virtual team performance based on proximity to team members (Cummings & Haas, 2012). Specifically, team performance and satisfaction were higher for those teams comprised of virtual members in closer proximity to each other (Cummings & Haas, 2012).

Personality characteristics associated with constructs related to virtual work, including levels of personal and professional satisfaction and fit, were also evidenced as important construct for consideration (Clark et al., 2012). For example, researchers hypothesized that agreeableness, conscientiousness, emotional stability, and openness would all be correlated to positive perceptions regarding virtual work, whereas

researchers hypothesized extroversion would be negatively correlated to virtual worker levels of satisfaction (Clark et al., 2012). To prove or disprove their hypothesis, researchers recruited 333 college students from business courses, requiring participants to complete the 100-item International Personality Item Pool from which to isolate Big Five personality categories (Clark et al., 2012). Results determined that positive perceptions and increased levels of satisfaction with telecommuting work was more likely with those presenting higher in agreeableness traits, whereas negative perceptions regarding job satisfaction were evidenced with increased levels of emotional stability (Clark et al., 2012). For example, participants with higher neurotic measures had a higher chance of finding job satisfaction as telecommuting presented fewer virtual-work challenges than traditional in-office jobs (Clark et al., 2012).

While virtual environments offer a number of benefits to workers, there are challenges as well. For example, one of the challenges evidenced in the literature as affecting virtual workers was the change from traditional work dynamics (Sardeshmukh et al., 2012). However, virtual worker satisfaction was evidenced as related to reduced levels of role ambiguity, increasing the level of worker autonomy and reduced work-related stress (Sardeshmukh et al., 2012). Additionally, job resources and demands were viewed as the mitigating variable in the relationship between exhaustion, job burnout, and reduced levels of engagement among virtual workers (Sardeshmukh et al., 2012). Another challenge evidenced was that of telepressure. In their dual-leg quantitative study involving 354 virtual workers from Amazon's Mechanical MTurk to ensure a participant base that most closely resembled results for the composite United States, results of the

first study demonstrated that single factors related to increased perceptions of telepressure included perceived response expectations, technological overload and feelings of public self-consciousness (Barber & Santuzzi, 2015). The second leg of Barber and Santuzzi's (2015) study demonstrated that telepressure was a unique factor, separate from other personal or work-related factors; however, telepressure was also associated with lower levels of job satisfaction, increased absenteeism, burnout, and reduced sleep quality.

The greater the level of personal responsibility the virtual worker has, the greater the need for virtual employment allowing for work-hour flexibility (Galea et al., 2013). According to researchers, this has become a necessity rather than a luxury for many virtual workers (Galea et al., 2013), particularly among workers with responsibilities extending beyond the professional realm (Lu et al., 2011). However, culture was viewed as a mitigating factor in the need for flexibility and the impact on satisfaction levels with virtual work (Lu et al., 2011). For example, flexible work arrangements were negatively perceived from a family conflict perspective among Latin Americans compared with Asians (Lu et al., 2011). This was also evidenced in the literature, as when virtual workers are required to work overtime from the home environment, employee satisfaction significantly decreases, as it impinges on the work-life and home-life balance, frequently leading to marital discord (Ojala et al., 2014). However, those who find degraded work-life balance in the virtual realm, believing it would enhance their job and personal satisfaction, were still found to have poorer levels of work-life balance than their peers working in the traditional face-to-face office setting (Koh et al., 2013). Koh et

al. (2013) suggested this implies those who still suffer from work-life challenges despite their virtual employment started with challenges in this area at the outset.

Irby (2014) highlighted other challenges that exist for virtual work performed in the home environment outside of family stressors. For example, in a study by Greer and Payne (2014) conducted with 86 teleworkers (rated effective or highly effective by their superiors), potential challenges included team output being ineffective due the decreased ability to personally interact with each other. The authors confirmed personal distractions took away from the work-home environment, limited face-to-face modes of communication, reduced management access, the perception of inadequate levels of technology, and limited access to required materials required to perform the job (Greer & Payne, 2014). Mitigating factors were identified, including the assurance of limited-downtime communication access and maintaining a strong work ethic (Greer & Payne, 2014).

Additional strategies to mitigate challenges experienced by virtual workers were also evidenced in the literature, including social support mechanisms (Bentley et al., 2016). For example, in a quantitative study of 804 virtual workers recruited from 28 organizations, with data collected from an online survey, results evidenced that social support mechanisms specific to the teleworker increased perceptions related to job satisfaction, while simultaneously reducing psychologically-oriented stress (Bentley et al., 2016). A similar study was conducted by Koh et al. (2013) focusing on work-life balance and work-life support using a significantly larger pool of participants (*N*=15,910) in Singapore, with similar findings. However, Koh et al. (2013) also determined that

position was a mitigating factor, such that those at higher levels within the organization reported lower levels of work-life balance support mechanisms. Processes and goal setting are also mitigating factors enhancing work-related quality of life for virtual workers evidenced in the literature as leading to improved levels of job satisfaction and job performance (Harrington & Santiago, 2006).

The Impact of Information and Communications Technology on Virtual Workers

According to Gibson et al. (2014), the simultaneous advances evidenced in technological communication are a cofactor associated with this growth. However, while the use of communication is paramount, communication breakdown is a higher risk for virtual teams than those in traditional face-to-face environments (Daim et al., 2012). Therefore, technology choice makes a significant impact on virtual workers (Ruppel et al., 2013). Often, communication in the virtual environment breaks down due to greater challenges with trust, cultural diversity and differences between and among teammates, problematic interpersonal relations, issues with leadership and issues with technology (Daim et al., 2012). A delay in information exchange based on electronic communication use has the potential to impact team member relationships among each other (Guenter et al., 2014). This breakdown can further lead to delays in the exchange of pertinent information required for task completion (Guenter et al., 2014). Researchers concluded that workers perceive a decreased sense of control, decrease in perceived coworker satisfaction, development of counterproductive behaviors, and, ultimately, withdrawal as job satisfaction deteriorates (Guenter et al., 2014). However, the effective use of digital communication and frequent interactions can lessen the perceived challenges of virtual

work, for example, those related to remoteness and isolation, and can increase cognition (Avolio et al., 2014). For example, socially-rich protocols can be added into the communication exchange process to mitigate the perception of isolation (Allen et al., 2015).

Communication options for virtual workers were therefore seen as a paramount mitigation strategy to enhance job satisfaction and performance (Greer & Payne, 2014). In fact, team effectivity is directly related to communication quality (Nydegger & Nydegger, 2010). However, current research evidenced that effective communication strategies for virtual workers do not mitigate all challenges. For example, maintenance of work/personal life boundaries was deemed more important than the selection of media to achieve effective communication based on requirements of the task (Ruppel et al., 2013).

The specific type of communication media chosen by a manager paralleled the requirements of the specific task, as well as assured the maintenance of work/personal life boundaries (Ruppel et al., 2013; Smith, 2015). In fact, researchers concluded that often the need presents for exploiting information and communication technologies by "pushing technological boundaries" based on the specific task(s) required by virtual workers (Allen et al., 2015; Baralou & Tsoukas, 2015). For example, new technologies, including the use of social media platforms and specialized online meeting facilities, enable greater flexibility for use by virtual teams and virtual team members, enabling global residence (Gilson, Maynard, Young, Vartiainen, & Hakonen, 2014).

Task complexity dependence was another rationale for choice of communication strategy and tool (Kock & Lynn, 2012). Kock and Lynn (2012) sought to explore the

variety of electronic media use in the virtual team environment relative to the complexity of a specific task, and whether the use of a specific type of media for a complex task impacts team performance. Results of article extracts yielding 290 teams across 66 U.S. organizations determined that the extensive use of electronic media for communication enhanced the ability to complete complex tasks effectively, providing task-related coping mechanism, including the ability to coordinate efforts among team members (Kock & Lynn, 2012). Results also evidenced the increased coordination on a complex task basis led to enhanced team effectiveness; however, the variety of media types was evidenced as providing a lesser important construct in relation to coping with complex tasks (Kock & Lynn, 2012). In fact, Kock and Lynn (2012) determined that extensive use of electronic media for communication in the virtual team setting was found to enhance the ability to complete complex tasks effectively, providing task-related coping mechanisms, including the ability to coordinate efforts among team members.

Just as personality was tied to appropriate fit for virtual work (Clark et al., 2012), this was also found to be the case for use of communication technology (Smith, Patmos, & Pitts, 2015). Regarding communication use, personality characteristics including conscientiousness, openness, extraversion, and agreeableness were evidenced in individuals more likely to experience enhanced levels of job satisfaction, moderating variables were found in relation to communication channels (Smith et al., 2015). For example, telephone use as well as video conferencing was preferred by those displaying high levels of openness, whereas agreeableness was more closely related to telephone use as the primary source of communication (Smith et al., 2015).

Cogliser et al. (2013) sought to explore and identify the structure of communication and information exchange in virtual groups. To satisfy the purpose, researchers recruited 233 university students form across 50 teams based on content analysis from the computer based communications between members of each virtual team (Cogliser et al., 2013). Communication and information exchange in virtual groups followed four structures: unified generalized, unified generalized with isolates, unified balanced, and unified balanced with isolates (Cogliser et al., 2013). Unified generalized was associated with the creation of high-quality relationships and exchanges, characterized by high levels of shared information and cooperation (Cogliser et al., 2013). Unified generalized was similar; however, this affects only evidence among most team members: a minority evidenced negative exchanges (Cogliser et al., 2013). Unified balanced varied with the display of degraded communication and relationships among and between some team members, as well as lower levels of trust and lower levels of concern for others (Cogliser et al., 2013). Unified balanced with isolates evidenced the same as unified balanced, however, it was at the lower level of the spectrum, whereby rather than the negative aspects affecting a modest percentage of members, these constructs were evidenced by the majority (Cogliser et al., 2013). Virtual project team categorized as unified generalized, compared with unify balanced, failed to evidence enhanced levels of member support and satisfaction or performance; however, for both categories when isolates were added, team performance and levels of satisfaction suffered (Cogliser et al., 2013).

Attitude Toward Virtual Workplaces

As evidenced throughout the literature, attitude is the paramount psychological determinant of employee job satisfaction or dissatisfaction (Zhu, 2013). In other words, attitude can either foster one's ability to successfully work in a virtual setting, or, in finding the virtual setting inappropriate, contribute to the hindrance of the employee's productivity, job effectiveness, and overall level of job satisfaction. Moreover, by understanding whether an employee's attitude toward her virtual workplace was predominately positive or negative in nature, their perspective of and job satisfaction regarding their virtual workplace can easily be determined. The following section will review current literature regarding the major psychological and demographical variables that contribute to the formation of one's attitude, which can therefore impact their attitude toward working in a virtual capacity, and, ultimately, their level of success in said virtual workplace.

Demographic variables. For example, from a demographic perspective, those who are married and rely on schedule flexibility rather than their single counterparts who may not require the same degree of schedule accommodation prefer virtual or telecommuting job opportunities (Lim & Teo 2000). However, according to research conducted by Bailey and Kurland (2002), transportation issues and family care obligations were determined as lesser ranking reasons for employees opting for virtual employment opportunities. This was further supported by Hill, Ferris, and Martinson (2003), who compared three work settings (virtual office, N=767; home office, N=441; and traditional office, N=4316) in a quantitative study and determined that the impact of

work-related aspects, including such variables as job motivation, career opportunity, job retention, and ability to achieve a successful performance level from home, were more important than those aspects of a job related to the employee's personal life.

Literature, however, was inconsistent related to family/work balance. For example, single parents prefer virtual or telecommuting work specifically as it allows for a flexible schedule (Osnowitz, 2005). In fact, Osnowitz (2005) determined that when females opt for virtual or telecommuting employment options, their home/life balance still appears unaltered as traditional parenting obligations are maintained in a seamless fashion despite the work-at-home effort, whereas when men opt for virtual employment, their involvement in family and parenting obligations are noted as more markedly changed by the home-based work setting. However, Baruch (2000) determined that working in the virtual setting bettered the family dynamic by reducing stress, both caused by work-related constructs as well as the need to maintain a healthy family/work balance.

Findings from Osnowitz's (2005) research are borne out by societal implications as well, which, in turn, impact gender-based decisions to opt for virtual or telecommuting employment (Vandello, Hettinger, Bosson, & Siddiqi, 2013). For example, in a study of managers regarding their attitudes toward employees seeking virtual or telecommuting opportunities, responses indicated that males opting for working in the home environment were viewed as less masculine than males working in the traditional office setting (Vandello et al., 2013). Additionally, males were more likely to receive lower performance ratings on evaluations than their males who worked in the traditional office setting, even when reality evidenced the same level of performance (Vandello et al.,

2013). However, men who sought out virtual employment were judged by managers as more moral and possessing warmer personalities than their peers who worked in the traditional office setting (Vandello et al., 2013). This led Vandello et al. (2013) to the conclusion that males might be reticent to seek out virtual employment due to the negative stigmatization associated with a non-traditional work setting.

Demographically, in addition to gender, there is a strong impact related to age and the decision to pursue virtual employment. For example, in a quantitative study of 612 employees from a large corporation predominately composed of baby boomers and Generation X employees, Elias, Smith, and Barney (2012) sought to investigate the impact of age as a modifying variable on the need for technology use, which is considered essential in the virtual workplace. Results determined that older individuals who are highly intrinsically and extrinsically motivated possess a stronger positive attitude toward technology and the use of technology compared to those who have a weaker motivational perspective (Elias et al., 2012). A particularly interesting notion is the growth of older virtual workers, including independent contractors and freelancers, who have retired from their jobs or terminated their employment from corporate America (Johns & Gratton, 2012). However, prior research conducted by Belanger (1999) refuted findings evidenced herein. In a quantitative study comparing two groups of high-tech employees, telecommuters and those who worked in the traditional office setting, results demonstrated that demographic variables including age, job category, and skill level did not impact the employee decisions regarding workplace preference (Belanger, 1999). It is possible that if Belanger's (1999) study were performed today, nearly 18 years later,

results would be significantly different based on the aging of society, growth of technology and change in the employment marketplace (Johns & Gratton, 2012).

Psychological impact. In addition to the impact of demographic variables that explain the manner in which employees perceive virtual work, psychological and cognitive variables were also evidenced in the literature (Baruch, 2000; Clark et al., 2012; Gajendran & Harrison, 2007; Hyrkkanen, Nenonen, & Axtell, 2016; Luse, McElroy, Townsend, & DeMarie, 2013). Two common psychological constructs investigated in the literature are personality and cognition. Luse et al. (2013) define personality as "a stable pattern of psychological processes, characteristics, and tendencies arising from motives, feelings, and cognitions which can be used to determine individual commonalities and differences in thoughts, feelings, and actions." Similarly, cognition relates to the manner with which individuals make decisions and process information (Luse et al., 2013). Therefore, exploring these two constructs in relation to attitude toward the virtual work was appropriate.

In a quantitative study of 132 university business students, Luse et al. (2013) sought to identify the impact of personality and cognition as predictive variables regarding virtual work style preferences, with a focus on individual versus teamwork. Participants were asked to complete the Costa and McCrae Revised NEO Personality Inventory and Myers Briggs personality inventory. Additionally, four items from a prior study on team versus independent work preferences were adapted by the Luse et al. (2013) research team. Results demonstrated that both constructs under study were significant with regard to the attitude of virtual work. For example, open individuals were

found to seek team experiences to foster new ideas (Luse et al., 2013). Similarly, those who were extraverted more were found by Luse et al. (2013) to place greater levels of trust in virtual work environments.

Other variables, particularly focused on work-related stressors, were assessed by Baruch (2000) in a qualitative study involving face-to-face interviews with 62 middle-level managers from five large professional organizations in the United Kingdom. Participants reported telecommuting provided a greater opportunity to time specifically devoted toward the work effort, with an average increase of 48% in time devoted specifically to required tasks (Baruch, 2000). Similarly, 76% of participants' self-perception of their own work-related effectiveness demonstrated an increase in the virtual setting (Baruch, 2000). Based on participant responses, Table 1 provides a detailed profile of qualities more commonly associated with a goodness of fit for virtual work. Similar categories were used to assess workplace-related goodness of fit related to the needs of a virtual workplace in a tool that included variables relating to functionality, familiarity, atmosphere, frequency and meaning, which can then be further refined based on organizational and job requirements, industry and specific genre (Hyrkkanen et al., 2016).

Table 1

Qualities Associated With Goodness of Fit for Virtual Workers

Ranking	*N*=	Quality
1	36	Self-disciplined
2	28	Self-motivated
3	26	Able to work independently
4	18	Tenacious
5	18	Organized
6	11	Self-confident
7	11	Strong time management skills
8	11	Computer literate
9	11	High level of integrity
10	2	Good communication skills

Note. Adapted from "Teleworking: benefits and pitfalls as perceived by professionals and managers," by Y. Baruch, 2000, *New Technology, Work and Employment, 15*(1), 34-49. Copyright 2000. Adapted with permission.

Other personality dimensions strictly associated with the Big Five personality traits were assessed by Clark et al. (2012). Traits include agreeableness, which is associated with an individual being cooperative, friendly, and of high integrity (Clark et al., 2012). Extraversion is the second trait characterized by individuals who are more open, enthusiastic, talkative, and assertive (Clark et al., 2012). Conscientiousness is the third trait, which is characterized by descriptors such as thorough, responsible, self-disciplined, efficient, and hardworking (Clark et al., 2012). Emotional stability is the fourth trait of the Big Five, and is typically characterized in terms of what it is not, frequently citing references to those who are neurotic with fears, insecurities, and emotionality rather than stability (Clark et al., 2012). The fifth component is openness, which is associated with individuals who seek intellectual and mental stimulation, who are more creative and who readily engage and welcome new ideas and concepts (Clark et al., 2012). Based on these tenants, Clark et al. (2012) determined those individuals who

rated high in agreeableness and low in emotional stability were more favorable candidates to work in a virtual setting. In particular, those who were more agreeable were likely to maintain a stronger work/family balance working in the home setting, making them better suited to virtual work (Clark et al., 2012). Lower emotional stability was associated with virtual employee relief at limited unstructured social interactions (Clark et al., 2012). According to Clark et al. (2012), of the five Big Five personality traits, agreeableness and emotional stability were the only two constructs that had a significant impact on attitude and fit for virtual work.

From a psychosocial stance, Gajendran and Harrison (2007) determined that although the potential for isolation is strong in the virtual workplace, typical social relationships with peers at work were not damaged by distance and setting. As reported in the literature, the potential for feelings of isolation by a virtual worker are based on the limited nature of casual social interactions with coworkers or supervisors due to the remote location of their workplace (Siddique, Rasli, & Mahfar, 2014). However, in support of Gajendran and Harrison's (2007) results, current research from Munir et al. (2015) demonstrates that effective use of communication and technology, corresponding to media richness theory, can serve as a mitigating factor to the potential isolation more likely to affect virtual workers. Furthermore, the type of isolation should be noted as well, as the majority of literature focuses on "unstructured social contact" compared with the contact with others required for work effectiveness and productivity (Johns & Gratton, 2013, p. 5). Unstructured social interactions may be perceived as the passing of others in the hallway and entering into short social exchanges, or those in a break room

when getting coffee throughout the day. Although the psychosocial attributes associated with isolation can become an obstacle for some, for others with more neurotic tendencies, working independently in the quiet of one's own home, is viewed as a benefit to virtual work (Clark et al., 2012).

In conclusion, although Bailey and Kurland (2002) reported a lack of consistency and clarity in the literature regarding motivations for employees choosing telecommuting and virtual employment opportunities, and the literature supported a greater number of articles discussing the relationship of leadership and technology. This section provided evidence on the attitude of workers impacted by general demographic and psychological variables. For example, the literature was slightly inconsistent on the impact of gender, suggesting the male gender tends to be viewed as less masculine and subject to stigmatization if they opt for virtual employment (Vandello et al., 2013). Similarly, whereas one might believe transportation savings would be a major demographic perceived draw for those interested in virtual employment opportunities, researchers determined this as of lesser ranking reasons for employees opting for virtual employment opportunities (Bailey & Kurland, 2002: Hill et al., 2003). Schedule flexibility was a strong draw, particularly for single parents (Osnowitz, 2005).

Psychological factors were more consistent throughout the literature as to how they impact the attitude of individuals regarding virtual work settings, including their appropriateness of fit concluding those who were more agreeable and even those who were slightly neurotic, or less emotionally stable, would fare better in the virtual work setting than others (Clark et al., 2012; Hyrkkanen et al., 2016), In fact, Baruch (2000)

provided a composite profile of personality traits most commonly associated with the ideal virtual worker, with participants designating self-discipline as the top personality characteristic for the ideal remote employee. Although social isolation issues were viewed in the literature as a drawback to the virtual workplace (Gajdendran & Harrison, 2007), it was also presented that the type of isolation was unstructured social isolation, which factored into the reasons why those who were lower ranking in emotional stability were more at ease in the virtual workplace setting (Baruch, 2000; Clark et al., 2012; Gajdendran & Harrison, 2007; Johns & Gratton, 2013; Siddique et al., 2014). Based on the literature regarding the impact of demographic and psychological variables that create the underlying attitudinal perceptions of the virtual worker, it is clear that these notions set the foundation for further discussions regarding the impact of leadership styles on virtual workers and teams. It was further suggested that these same variables and constructs would be impacted in dissimilar ways based on attitude regarding the premises of the job-demands model and media richness theory, as detailed in later sections of this review. However, it must be noted that, aside from the literature noted throughout this chapter, a significant gap remains in the exploration of the relationship between a leader's leadership style and leader-member communication in the workplace (Dahlstrom, 2013).

Gaps, Summary, and Conclusion

This literature review provided a comprehensive investigation and report of current academic evidence related to leadership, virtual workers, and the use of information and communication technologies. Whereas the unbiased review of literature offered a presentation of evidence, the following summary and conclusion will include

the researcher's analysis and synthesis of the articles, including, when appropriate, the manner in which the publications support the current research. The final section will flow from the summary and conclusion, evidencing gaps in the literature, which justify the current research effort.

Gaps

Despite the plethora of evidence, a number of significant gaps in the literature remain. These gaps led to the formation of the study in focus by closely analyzing three research questions that had been unanswered in prior literature. These questions include the following: Is there a relationship between employee job satisfaction and attitude toward the virtual workplace setting? Does leader-member communication moderate the relationship between employee job satisfaction and attitude toward the virtual workplace setting? Does leadership style moderate the relationship between employee job satisfaction and attitude toward the virtual workplace setting? These questions initially led to the development of the qualitative study, which was to examine whether employee satisfaction predicts attitude toward virtual workplace settings and if said relationship was moderated by leader-member communication and leadership style. As stated throughout the background sections of the current study, for example, insufficient research has explored the ways that leadership style and leader-member communication may moderate relations between employment in a virtual workplace and job satisfaction. The current literature review sought to dispel Dahlstrom's (2013) statement on literature scarcity related to the complex of leadership style, leader-member communication, and the virtual workplace. However, gaps in the current review of the literature support

Dahlstrom's (2013) statement as literature identified and discussed herein presents evidence on isolates related to the current study rather than to one study integrating all study variables.

While literature presented as unique pieces of evidence were sound, however, the ability to compare, consolidate, or contrast one with the other was compromised due to a lack of universal definitions. This was viewed as especially problematic in the presentation of material on virtual workers, as often literature used the term teleworker as synonymous with virtual worker (Allen et al., 2015). However, elsewhere, teleworker was defined as only engaged in virtual work for a portion of their work, with specific hourly or the performance of specific tasks in the traditional workplace setting (Barber & Santuzzi, 2015; Irby, 2014). While the lack of universal definitions was problematic from a literature review perspective at the macro level, at the micro level it also held the potential to invalidate study findings by failing to define variables to participants. Therefore, participants for any particular research effort may have completed questionnaires, for example, based on their own study. Therefore, the literature review has demonstrated the current gap in the literature justifies the study purpose, which would explore all study variables and provide appropriate definitions for variables to participants.

Summary

Current evidence regarding leadership presented an overview of the various leadership styles and approaches, ranging from transformational and transactional to laissez-faire and shared. Transformational leadership was defined and evidence

demonstrated that this leadership strategy was pro-social (Grant, 2012), and resulted in inspired and motivated workers (Choudhary et al., 2013), increased employee satisfaction (Lam & O'Higgins, 2012; Shurbagi, 2014) and increased organizational support (Shurbagi, 2014). Evidence demonstrated a number of interesting factors related to transformational leadership. For example, transformational leader behavior was found to be consistent, whether leading face-to-face or virtual teams (Purvanova, 2014). However, researchers concluded that the impact of transformational leadership on team identification, rather than the individual, is different (Tse & Chiu, 2014), implying leadership strategies for each situation is unique to the setting. Transformational leadership was also viewed as a strategic approach to foster interaction between teammates (Purvanova, 2014); a challenging area discussed in later sections of the literature review. However, leadership dimensions can overshadow the effects of traditional transformational leadership strategies: environmental monitoring, path-goal facilitation, strategy formulation and outcome monitoring (Rowold, 2014).

A positive association between shared leadership and enhanced team performance was evidenced in the literature (Hoch et al., 2010; Wang et al., 2014), which represents increased levels of staff participation in decision-making, including enhanced knowledge sharing and increased within-team discussion (Ulhøi & Müller, 2014). In fact, shared leadership naturally emerged as team member dependence increased, while simultaneously decreasing the negative impact of cultural diversity in virtual teams (Norback & Small, 2015). The researchers' findings also conclude that when shared leadership is paired with increased trust, the virtual worker's perception of job

satisfaction increases (Drescher & Garbers, 2016; Robert & You, 2013). Shared leadership also increased team creativity (Peter et al., 2015). However, staff age (Hoch et al., 2010) and type of information (Wang et al., 2014) were seen as modifying variables.

In sum, leaders were more likely to display similar personality constructs, despite global location and cultural differences (Winsborough & Hogan, 2014). This was supported throughout the literature as the international orientation evidenced by research performed outside of the United States (Bogler et al., 2013; Çakmak et al., 2015; Hoch et al., 2010; Shurbagi, 2014) was also deemed important to the dissertation effort as it evidenced the global nature of the relationship between leadership style and job satisfaction, as well as provide trend evidence on the consistent nature of modifying variables reported.

The general discussion of virtual workers evidenced a major challenge reflected in the articles retrieved, in that there were no consistent definitions within the literature of virtual workers (Allen et al., 2015). Additionally, researchers determined that virtual teams function differently than face-to-face teams (Gera et al., 2013), with individuals engaged in complex work, whereby team members are often assigned to more than one project or work effort (Cummings & Haas, 2012; Schmidt, 2014). Virtual worker satisfaction was determined to relate to reduced levels of role ambiguity, increasing the level of worker autonomy and reduced work-related stress (Sardeshmukh et al., 2012). Job resources and demands can mitigate the relationship between exhaustion and reduced levels of engagement (Sardeshmukh et al., 2012), thus supporting the engagement of the current theoretical framework.

A number of challenges facing virtual workers were also evidenced, including telepressure, which leads to lower levels of job satisfaction, increased absenteeism, burnout, and reduced sleep quality (Barber & Santuzzi, 2015). Other challenges were those that affected work-life balance, including issues with families and overtime (Koh et al., 2013; Lu et al., 2011; Okala et al., 2014), team output being ineffective due the decreased ability to personally interact with each other, personal distractions taking away from the work-home environment, limited face-to-face modes of communication, reduced management access, the perception of inadequate levels of technology, and limited access to acquire materials required to perform the job, for example (Irby, 2014). In fact, communication breakdown was evidenced as a higher risk for virtual teams than those in traditional face-to-face environments due to greater challenges with trust, cultural diversity and differences between and among teammates, problematic interpersonal relations, issues with leadership, and issues with technology (Daim et al., 2012). Collectively, these psychological and demographical factors influence one's attitude as it responds and interacts with the virtual workplace setting. As stated earlier in the chapter, attitude is the paramount psychological determinant of employee job satisfaction or dissatisfaction (Zhu, 2013), and a positive or negative attitude toward the work environment had the potential to impact an employee's productivity, job effectiveness, and overall level of job satisfaction. However, social support mechanisms specific to the teleworker mitigated these challenges, while simultaneously reducing psychologically oriented stress (Bentley et al., 2016; Koh et al., 2013). Similarly, the communication mode used by virtual workers and teams was seen as a mitigation

strategy (Ruppel et al., 2013), lessening many of the perceived challenges of virtual work, such as those related to remoteness, and increasing cognition (Avolio et al., 2014), consistent with the media-richness theory used as part of the theoretical framework. However, to that end, maintenance of work/personal life boundaries was deemed more important than the selection of media to achieve effective communication based on requirements of the task (Ruppel et al., 2013).

In fact, team effectivity is directly related to communication quality (Nydegger & Nydegger, 2010). Communication choice was often seen as chosen by a manager and paralleled the requirements of the specific task, as well as assured the maintenance of work/personal life boundaries (Ruppel et al., 2013; Smith, 2015). Often exploiting information and communication technologies within the virtual setting by pushing technological boundaries are appropriate based on the specific task (Allen et al., 2015). For example, socially rich protocols can be added into the communication exchange process to mitigate the perception of isolation (Allen et al., 2015). Indeed, extensive use of electronic media for communication in the virtual team setting was found to enhance the ability to complete complex tasks effectively, providing task-related coping mechanism, including the ability to coordinate efforts among team members (Kock & Lynn, 2012).

While personality characteristics, including conscientiousness, openness, extraversion, and agreeableness—known as the Big Five (Clark et al., 2012)—were evidenced by researchers as presenting in individuals more likely to experience enhanced levels of job satisfaction, moderating variables were found in relation to communication

channels (Smith et al., 2015). For example, telephone use—as well as video conferencing—were preferred by those displaying high levels of openness, whereas agreeableness was more closely related to telephone use as the primary source of communication (Smith et al., 2015). Similar to the presentation of literature based on international research efforts in leadership, evidence presented related to virtual workers also possessed added value based on the global research efforts included herein (Clark et al., 2012), demonstrating that benefits, as well as challenges, perceived by virtual workers or teams were universal constructs.

Leadership of virtual teams requires a unique set of skills (Carter et al., 2014). Evidence suggested whereas extroversion, cognitive ability, self-efficacy, and leadership emergence are moderated in the virtual setting when compared with the face-to-face environment, density of the leader's network ties moderates the impact of these constructs (Serban et al., 2015). In fact, choice of electronic media used for communication was related to transformational leader qualities related to emotional stability as well as extraversion (Balthazard et al., 2009).

Use of communication media by virtual leaders evidenced as successful in findings providing a great deal of insight. For example, both motivational language and the provision of feedback through email were perceived differently by virtual team members based on type of language used by leaders (Fan et al., 2014). For example, virtual team members provided with specific directions displayed enhanced levels of creativity and generated a greater number of ideas when a feedback was demanded, whereas those who were provided instructions that used language perceived as more

empathetic were more creative when feedback was encouraged, rather than demanded (Fan et al., 2014). However, there were a number of caveats in the findings that stress requirements for communication use by virtual leaders. For example, Schmidt (2014) determined that to foster relationship building as a successful strategy, communication between teams, individuals, and the virtual leader must occur with greater frequency than in traditional face-to-face office settings (Schmidt, 2014). Relationship building was viewed as pivotal, thus the importance of the relationship building evidenced by Schmidt (2014), as virtual leaders can easily fall prey to communication misunderstandings due to cultural diversity without the benefit of visual and verbal cues available in face-to-face communication (Lockwood, 2015).

Virtual team leadership style was perceived as more important than the tangible variables to the virtual leader, and therefore was responsible for providing the worker with the proper tools to effectively perform their tasks (Carter et al., 2014). Therefore, evidence regarding varied leadership styles was reviewed. For example, transformational leadership characteristics were found more important in the face-to-face settings rather than among workers in the virtual realm (Balthazard et al., 2009); however, this was disputed in evidenced from Bogler et al. (2013), who determined virtual worker satisfaction was enhanced when leaders were transformational. This offers a contrast to the notion that shared leadership was positively associated with enhanced levels of team performance, irrespective of virtuality, whereas degree of virtuality modified the relationship between team performance and hierarchical models of organizational leadership and management (Hoch & Koslowski, 2014). Additionally, whereas socially

oriented behaviors demonstrated by the virtual team leader positively correlated with perceptions of trust within the team (Cogliser et al., 2012) and task-oriented virtual leaders predicted higher levels of team performance (Cogliser et al., 2012). In fact, critical success factors associated with virtual project leadership include clear communication, goal setting, effective project management and leadership styles, project management competence (as perceived by the team), and trust in the team (Verberg et al., 2013). These findings within the literature support the overall conclusion reached by Nydegger and Nydegger (2010): Virtual team leaders must be flexible, as the demands of leading virtual teams literally change from project to project. However, despite the evidence demonstrating increased levels of job performance and job satisfaction based on virtual leadership style, Çakmak et al. (2015) suggested that leadership style only possesses a moderate positive effect on job satisfaction, however, this was also moderated by industry type and position held.

Researchers also concluded that the virtual leader's use of information and communication technology impacts the team (Duranti & de Almeida, 2012; Malhotra & Majchrzak, 2014). For example, selection of communication technology type has a significant impact on team performance, particularly based on the selection as most appropriate to the task (Malhotra & Majchrzak, 2014). However, cultural values, norms, and perceptions significantly impacted both the type and use of specific electronic communication media, particularly in relation to communicating in a virtual environment (Duranti & de Almeida, 2012). For example, participants from the United States were

more likely to prefer lower rich tools for decision-making rather than rich tools, which were preferred by their Brazilian peers (Duranti & de Almeida, 2012).

Conclusion

As stated at the outset, the goal of this research effort was to explore if employee job satisfaction is a predictor of attitudes toward the virtual workplace setting, and if this relationship is directly affected by leader-member communication and leadership style. Literature reviewed herein uncovered a number of significant findings regarding leadership styles and virtual workers with respect to job satisfaction and the use of communication. For example, effective leader communication, a skill representative of transactional leaders, can enhance job satisfaction (Lam & O'Higgins, 2012; Shurbagi, 2014; Tse & Chiu, 2014; van Dierendonck et al., 2014). Furthermore, when applied to the virtual setting, effective communication can enhance job satisfaction (Avolio et al., 2014; Cogliser et al., 2013; Kock & Lynn, 2012; Ruppel et al., 2013; Smith, 2015), and worker performance (Balthazard et al., 2009; Charlier et al., 2016; Schmidt, 2014). However, leader communication in the virtual realm can also create more challenges (Duranti & de Almeida, 2012; Lockwood, 2015). Moreover, the psychological and demographical attitudes of employees working in a virtual setting can impact the way that employees interact with his/her work environment as well. An employee's attitude is the paramount psychological determinant of employee job satisfaction or dissatisfaction and it can contribute to the employee's level of success in the work environment. However, because the dynamic of leadership in virtual setting functions differently than that of a physical work environment, it is not always easy for those in leadership roles to foster an

employee's job responsibilities or expectations to accommodate his skill set, as in a virtual environment, it is more challenging to comprehend positive versus negative workplace attitude.

Whereas there were a number of strengths in the evidence provided, such as the composite of evidence yielding research from both within the United States as well as internationally, evidencing consistent findings, this furthers the confidence that evidence presented herein should be viewed as valid and reliable. Researchers evidenced also demonstrated findings that supported the theoretical framework, particularly the merging of the media richness and job demands-resources theories, as the use of communication tools and strategies in the virtual setting was found dependent on task complexity (Kock & Lynn, 2012). However, significant gaps in the literature also remain, as detailed below.

The following chapter will provide the research method for this study. Beginning with a brief introduction, Chapter 3 will provide information about the research design and rationale of this study, followed by the methodology, which includes information about the population of the study, the sampling and sampling procedures associated with the study and the procedures for recruitment, participation, and data collection. The instrumentation and operationalization of constructs will be explained, as every variable— job satisfaction, attitude toward virtual workplace, leader-member communication, and leadership style—merits a specific research tool to gather data. The data analysis will provide a step-by-step description of how the study was conducted, in addition to a reinstating of the research questions and hypotheses. The chapter will conclude with a section outlining threats to validity that will explain anything that may

influence the outcome of the research, including ethical procedures, followed by a summary.

Chapter 3: Research Method

Introduction

Virtual workers (Hoch & Kozlowski, 2014), often referred to as telecommuters (Irby, 2014), or teleworkers (Barber & Santuzzi, 2015) comprise a significant portion of the workforce (Irby, 2014; Schmidt, 2014). Upwards of 61% of organizations with greater than 500 employees engage in the use of virtual workers and teams (Schmidt, 2014). People who telecommute or work in virtual settings report higher satisfaction from increased flexibility and autonomy (Sardeshmukh et al., 2012). However, relationships with leaders are more difficult to build, particularly as leadership in virtual workplaces tends to be less hierarchical (Hoch & Kozlowski, 2014; Skogstad et al., 2015). Leader-member communication is an important aspect of employee job satisfaction (Loi et al., 2014) and a significant problem exists for leaders who are ill-prepared to function in the leadership role required by a virtual workplace (Kirkman et al., 2004). Research is essential for the development of effective management and leadership strategies to meet the requirements of the growing segment of the workforce that telecommutes or works within a virtual setting (Irby, 2014), and a significant gap exists in the dynamic between leadership style and leader-member communication, employee satisfaction and attitude (Dahlstrom, 2013). This research strove to uncover how employee job satisfaction influences attitude, and how leader-member communication and leadership styles contribute to the formation of the employee's job satisfaction and corresponding attitudes toward the workplace.

The purpose of the quantitative study was to examine if there is a relationship between employee job satisfaction and attitude toward the virtual workplace setting if leader-member communication and leadership style monitor this relationship. The independent variable is employee job satisfaction and the dependent variable is attitude toward the virtual workplace setting, and the moderating variables are leader-member communication and leadership style. A sample of virtual employees were recruited by contacting companies located in the United States and data on the research variables were collected using survey instruments. Surveys were given using an online format to ensure anonymity. Relationships between variables were analyzed using regression techniques to quantify the nature and significant of relationships while controlling for moderating effects statistically.

This chapter will present the research design and rationale for the study. This will be followed by a detailed methodology including discussion of the population, sampling procedures, data collection procedures, and instruments used in the study. This will be followed by a discussion of the data analysis procedures used in this study. Finally, the chapter will discuss threats to validity and ethical concerns, and conclude with a summary.

Research Design and Rationale

A quantitative, correlational research design was used to examine the moderation effect of leader-member communication and leadership style on the relationship of employee job satisfaction and attitude toward virtual workplace setting. The independent variable is job satisfaction, the dependent variable is attitude toward virtual workplace

setting, and the moderating variables are leader-member communication and leadership style. Quantitative research refers to research in which quantifiable, numeric data are collected and relationships between independent and dependent variables are explored (Cooper & Schindler, 2003; Hopkins, 2008). A qualitative approach was not appropriate as qualitative research focuses on establishing a theory, a model, a definition, or the understanding of a phenomenon (Cooper & Schindler, 2003; Hopkins, 2008).

A non-experimental, correlational research design was used throughout the study. The main objective of the correlational research design was to measure the behavior and strength of any relationship that exists between two variables (Leedy & Ormrod, 2013), which was consistent with the objectives of this analysis. Observational, or non-experimental, research was also appropriate as observational research does not involve the manipulation of study variables or the use of a controlled experimental setting (Cooper & Schindler, 2003; Goertz & Mahoney, 2012; Hopkins 2008). Observational research was the only appropriate research for this study as manipulation of the study variables such as the subjects' workplace or work leader was not ethically or physically possible by the researcher.

Methodology

Population

The population of this analysis was all virtual, or telecommuter, employees who work within the United States. Upwards of 61% of organizations with greater than 500

employees engage in the use of virtual workers and teams (Schmidt, 2014). Virtual employees over the age of 18 years, of both genders and all races, were included in the study population. All industries and virtual job roles were included as well.

Sampling and Sampling Procedures

The sample for this study was a convenience sample that includes men and women who have worked in a virtual workplace setting either part-time or full-time for at least 6 months, who are also 18 years of age or older and whose leader supervises fewer than three employees. Should all employees from each team included in this study consent to participating, responses from members on the same team will be similar due to factors not measured in this analysis such as overall team dynamics, and therefore multiple responses from the same team may affect study results. Collecting data from multiple members of the same team may cause a skewing of the data due to the fact that all members would report data on the same leader. However, as it would be impractical to only recruit one member from every team, the study will restrict participants to members of teams with fewer than three members in order to minimize the number of dependent samples. This has the additional benefit of ensuring that all subjects come from similar size teams, therefore controlling for team size as a variable in this analysis.

Power analysis using G*power for F-test (linear multiple regression: R2 deviation from zero) was used to determine the appropriate sample size. With an effect size f2= 0.15 (medium effect size), alpha error probability of .05 and 95% power, and four predictor variables, the minimum target sample was 129 participants (Appendix C). The researcher will contact at least 50 companies that employ 500 or more employees. Not all

employees in an organization are virtual workers, and teams of more than three members were excluded. However, the researcher continued the process of contacting companies until the desired response rate of 129 participants has been obtained or exceeded. In a study conducted by Sauermann and Roach (2013) in which the researchers analyzed the influence of survey characteristics on survey response rates, response rates ranged from 20.7% to 31.1%. If the lowest rate of web survey response were applied to this study as found by Sauermann and Roach (2013), and a minimum number of employees in each company were assumed, more than 5,000 participants may be solicited using this participant recruitment strategy. Participants were recruited at several companies and organizations that have virtual workplaces. These companies were identified using social media tools such as LinkedIn and contacted by the researcher for inclusion in the study.

Procedures for Recruitment, Participation, and Data Collection

Permission for all instruments are in Appendixes D, E, F, and G. This study included 50 companies that have telecommuter workers that were identified by the researcher using the top 100 companies offering remote jobs (Appendix H; Shin, 2017). The researcher then contacted the human resources department of the companies by phone and explained the nature and requirements of the study, and permission was sought for inclusion in the study. Companies that consented to inclusion in the study were then be sent an online link to the survey instrument hosted on SurveyMonkey, an online platform, which was screenshotted in the Appendix. They distributed the survey to their virtual employees. In the event that less than 50 companies consented to participation in the study, the researcher would have repeated the process using the top 100 companies

offering remote jobs for 2016 and 2015, as well as companies listed on LinkedIn.com until at least 50 participating companies were obtained. The researcher called the human resources department of each consenting company weekly to request that the invitation to participate be resent to virtual workers until the minimum sample has been obtained for a period of 4 weeks.

The SurveyMonkey survey consisted of several sections. The first section was a page explaining the nature of the study, the time expectations, and any other relevant information. Relevant contact information were provided if subjects wished to obtain more information about the study or survey. All subjects were asked in this page to provide informed consent and reassured that all data was collected anonymously. Subjects were informed that if they change their mind about participating in the study, they only needed to close their web browser and the session would be terminated with no responses sent. The next section of the survey included pre-screening and all items from the four survey tools used during this analysis. Respondents who indicated that they do not telecommute, work in teams of more than three people, and have no clear leader or report to multiple leaders were excluded from the study. Questions from the four tools were formatted to allow the participant to complete them as one survey. The final part of the survey included questions regarding demographics, worker status, and team size. If the subject was a virtual worker or telecommuter, they stated their team size and whether they reported to a single leader. After completion of the survey, the subject was thanked for their time. Subjects were not compensated for their participation in the survey.

A period of time to allow as many subjects to complete the survey as possible was allowed, and this process required approximately 4 weeks. The researcher contacted the prospective companies one time each week for the 4-week period if there was no response on behalf of the company regarding participation. If, after the 4-week period, there was an unsubstantial amount of participants that have participated in this study, the same process would be continued whereas the research would make a second-round attempt to communicate with these companies, along with the attempt to communicate with new companies that met the qualifications of this study. This process would continue until there was an adequate amount of participants as needed for this study. Each company would be contacted (e.g., limit contact with prospective participants) and the contact person would distribute the research participation contact information (e.g., survey monkey link) as to limit any confidentiality issues with researcher. This allowed for sufficient time given the procedure developed to recruit and collect data. The data were downloaded by the researcher into a .csv format, which could be imported to IBM SPSS Version 23.0 for data analysis.

Instrumentation and Operationalization of Constructs

Each variable in this analysis was measured using a survey tool. The variables and the corresponding tools are detailed below.

Job satisfaction. Job satisfaction is an independent variable of this analysis and was measured using the Job Satisfaction Survey (JSS; Spector, 1994). The JSS is a 36-item scale that measures nine facets with questions responses measured on a six-point Likert-type scale (Spector, 1994). The nine facets of the survey tool are pay, promotion,

supervision, fringe benefits, contingent rewards, operating procedures, coworkers, nature of work, and communication. All facets have a Cronbach alpha greater than 0.60 indicating generally high internal reliability. A total score of overall job satisfaction was calculated from all item responses which has a Cronbach alpha of 0.91 (Spector, 1994). Overall score ranges from 36 to 216, where higher scores indicate greater job satisfaction. Generally, scores between 36 through 108 are considered dissatisfaction, 144 through 216 considered satisfaction, and between 108 and 144 considered ambivalent. The scale has been shown to have moderate test-retest reliability over an 18-month period (coefficients of the subscales range between 0.80 and 0.64; Van Saane et al. 2003).

Attitude toward virtual workplace. Attitude toward the virtual workplace was a dependent variable in this analysis and will be measured by the Principal Component Analysis of Telecommuting Attitudes Scale developed by Clark et al. (2012). The scale was developed to measure general attitude towards telecommuting without focusing on perceived costs and benefits. Example items include responses to statements such as "A standard office setting provides the most efficient workplace" or "I welcome the flexible work hours that telecommuting offers." The scale was developed after a literature review of previously published scales. Items in the scale focused on flexibility/freedom, career issues/visibility, interaction with others, productivity, stress, and overall attitudes. The survey metric was then tested on 379 individuals, of which 18.8% had experience with telecommuting, and a second sample of 333 individuals, of which 16.8% had experience with telecommuting. Principal component analysis with varimax rotation was then used to reduce the scale down to a 38-item scale with four factors consistent across both

groups examining the subscales of work preferences, flexibility, challenges, and benefits (Clark et al., 2012). The final scale has a Cronbach's alpha of 0.94 for the first group and 0.91 for the second group, suggesting very high internal consistency reliability.

Leader-member communication. Leader-member communication was a moderating variable in this study and was measured using the Leader-Member Exchange Scale (LMXS; Graen & Cashman 1975). The scale includes seven items measured of a four-point Likert style scale, which are summed to give an overall score of leader-member exchange. Total scores range from 7 through to 28 and the scale has a high Cronbach's alpha (.84), indicating there was high internal reliability of the scale (Scandura & Grean, 1984). Items include questions on how well a subject feels their supervisor understands their problems and needs, their confidence in their leaders' decisions, and how much they feel they can rely on their leader to bail them out or use their power to solve problems in the workplace. Test-retest reliability of the scale was high over a 6-month period (r = .67), indicating the instrument was generally reliable (Scandura & Grean, 1984).

Leadership style. Leadership style was a moderating variable in this analysis and were measured using the Multifactor Leadership Questionnaire (MLQ-5X)**,** specifically the Rater Only form, which allows a subordinate to assess the leadership style of their leader (Avolio et al., 1995). The MLQ-5X is the standard instrument for assessing transformation and transactional leadership behavior and is used worldwide (Mind Garden Inc., 2005). The scale measures transformational leadership, transactional leadership, and passive-avoidant leadership style outcomes, each across several

subscales. The scale includes 45 items and comes in two forms: the Rater Only Form and the Self Only Form. This study used the Rater Only Form, which was used by the subject to assess their leader, and is comprised of 45 items measured on a five-point Likert scale. Structural equation modelling has been used to provide evidence that the MLQ-5X is a valid and reliable instrument (Avolio et al., 1995). The subscales for each leadership type all have overall internal reliability of greater than 0.70 (Avolio et al., 1995). This scale has "satisfactory internal consistency" and the most common criticism has been the high correlation between transformational scales and contingent rewards (Heinitz, Liepmann, & Felfe, 2005, p. 185). Each scale included in this instrument meet the criterion of Cronbach's alpha of .70, with the exception of MbEa at an alpha of .62 (Heinitz et al., 2005).

Data Analysis

The research questions and hypotheses of this analysis were:

Research Question 1: Is there a relationship between employee job satisfaction and attitude toward virtual workplace setting?

$H_0$1: There is no relationship between employee job satisfaction as measured by the Job Satisfaction Survey and attitude toward virtual workplace setting as measured by Clark et al. (2012) instrument.

H_a1: There is a relationship between employee job satisfaction as measured by the Job Satisfaction Survey and attitude toward virtual workplace setting as measured by Clark et al.'s (2012) instrument.

Research Question 2: Does leader-member communication moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting?

$H_0$2: Leader-member communication as measured by Leader-member Exchange instrument (Graen & Cashman, 1975) does not moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting.

H_a2: Leader-member communication as measured by Leader-member Exchange instrument (Graen & Cashman, 1975) moderates the relationship between employee job satisfaction and attitude toward virtual workplace setting.

Research Question 3: Does leadership style moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting?

$H_0$3: Leadership style as measured by the Multifactor Leadership Questionnaire (Avolio, Bass, & Jung, 1995) does not moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting.

H_a3: Leadership style as measured by the Multifactor Leadership Questionnaire (Avolio et al. 1995) moderates the relationship between employee job satisfaction and attitude toward virtual workplace setting.

All data were aggregated into a .csv file by SurveyMonkey. This data were copied over to IBM SPSS Version 23.0, after which, data cleaning and processing occurred. Data were analyzed for incomplete data, which was not included in data analysis. Final scores for each of the variables were calculated as per the literature for each survey instrument. Job satisfaction, attitude towards virtual workplaces, and leader-member

communication were all measured as continuous, interval variables. Leadership styles were measured as a categorical variable with three levels: transformation, transactional and passive-avoidance style. Summary statistics were generated using IBM SPSS Version 23.0. Summary statistics of continuous variables included mean, standard deviation, and minimum and maximum values, which were reported in the results. Summary statistics of categorical variables were composed of frequencies.

RQ1 was answered using a Pearson product moment correlation. The correlation between job satisfaction and perception of virtual workplace was measured and the significance of the relationship was used to answer research question one. A Pearson product moment correlation was selected because this analysis was used to determine relationships and can be calculated using interval or ratio variables. The Pearson analysis standardizes raw scores to provide a simpler interpretation of relationships and the strength of those relationships (Lomax & Hahs-Vaughn, 2012). This method of analysis has been used to identify relationships of variables using data from survey instruments (Lohmann, 1977).

The second and third research question were answered using multiple linear regression. Job satisfaction was the independent variable and perception of virtual workplace was the dependent variable. Variables for leader-member communication and leadership style was also included along with their interaction with perception of virtual workplace. Parameter estimates were used to quantify the relationships between variables and significance was used to answer the research questions. Specifically, research question two examined the nature and significance of the interaction between leader-

member communication and perception of the virtual workplace. Research question three examined the nature and significance of the interaction between leadership style and perception of the virtual workplace.

Threats to Validity

This study has several aspects that may affect validity. Clustering by workplace and team would be beneficial, as workers who are in the same team may also experience work-related aspects that are independent of their leader but related to the composition of their team. This may have impacted their assessment of job satisfaction, perception of virtual work, and leader-member communication. For example, one particular team may get along very well, resulting in the team having higher job satisfaction and perception of virtual workplace that is independent of their leader. This statistically creates an effect called clustering where subjects within a cluster have correlated errors, and subjects in different clusters have independent errors. This effect cannot be disentangled by this analysis using statistical or research methods as methods to identify subjects of the same teams may compromise anonymity. To address this threat, though, members of teams with more than three members will not be included in this study, as described in the recruitment procedures. As a result, no more than three participants reported data on the same leader. Due to the size of the sample in this study, this helped to minimize any skewing of data.

Another aspect of the study that could have affected validity was that the Principal Component Analysis of Telecommuting Attitudes Scale developed by Clark et al. (2012), which has not been thoroughly validated in literature due to its recent

development. While this study may help to validate this instrument, its use in the study can serve as a threat to the validity of the study. To address this threat, the researcher reported the data gathered from this instrument in great detail for the purpose of accessing its internal validity in this study.

Ethical Procedures

The researcher obtained appropriate IRB approval before commencing this study, as well as approval for the use of each survey instrument from the relevant authors. This study collected all data from subjects anonymously using an online survey format. Informed consent was collected from subjects before participation in the survey and subjects were free to remove themselves from the study by failing to complete the survey at any point. Participants were not be able to access the survey without acknowledging the informed consent form and providing consent to participate in the study.

Demographic data were only collected to gain a perspective of sample demographics. Information about subject responses were not provided to the leaders of subjects or their companies. All subjects who participate in this study were above the age of 18; as such, were are no anticipated risks to minors. There may have been incidental inclusion of subjects with disabilities or others who are members of other special populations, but these subjects were not required to report their disability status. The researcher had no direct contact with any subject. There were no expected adverse effects of participating; however, should a participant have experienced such effects, they had the option of immediately exiting the survey.

Subject confidentiality was ensured because no identifying information was collected as a part of this study. Due to the anonymity of the responses, it was not possible to connect survey responses with individual respondents or the organizations that employ them. Per SurveyMonkey's privacy policy, all collected data were secure and only the researcher had access to the data using a password-protected account (SurveyMonkey, 2016). Data collected in this study and downloaded will be maintained securely on a password protected hard drive for 5 years or longer if required by IRB approval. After this time, the data will be permanently destroyed.

Summary

The purpose of the quantitative study was to examine if employee job satisfaction predicts attitude toward virtual workplace setting and if this relationship is moderated by leader-member communication and leadership style. Job satisfaction was measured using the JSS (Spector, 1994). Attitude towards the virtual workplace was measured using the tool developed by Clark et al. (2012). Leader-member communication were measured using the LMXS (Graen & Cashman, 1975), and leadership style was measured using MLQ-5X (Avolio et al., 1995). Relationships between variables were explored using correlation and multiple regression to explore the relationships between variables while controlling for moderating variables. Parameter estimates and significance were used to answer the research questions.

Chapter 4: Results

Introduction

The purpose of this quantitative study was to examine if there is a relationship between employee job satisfaction and attitude toward the virtual workplace setting if leader-member communication and leadership style monitor this relationship. The independent variable is employee job satisfaction and the dependent variable is attitude toward the virtual workplace setting, and the moderating variables are leader-member communication and leadership style. A sample of virtual employees were recruited by contacting companies located in the United States and data on the research variables were collected using survey instruments. Surveys were given using an online format to ensure anonymity. Relationships between variables were analyzed using regression techniques to quantify the nature and significant of relationships while controlling for moderating effects statistically.

Chapter 3 introduced the methodology and analytical approach. The current chapter will apply the statistical methods in Chapter 3 and answer each of the research questions. It will begin by introducing the data structure, and then the inferential portion will be presented. The direct implication of the results will also be discussed in this chapter.

Research Questions and Hypotheses

The research questions and hypotheses of this analysis were:

Research Question 1: Is there a relationship between employee job satisfaction and attitude toward virtual workplace setting?

$H_0$1: There is no relationship between employee job satisfaction as measured by the Job Satisfaction Survey and attitude toward virtual workplace setting as measured by Clark et al. (2012) instrument.

H_a1: There is a relationship between employee job satisfaction as measured by the Job Satisfaction Survey and attitude toward virtual workplace setting as measured by Clark et al.'s (2012) instrument.

Research Question 2: Does leader-member communication moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting?

$H_0$2: Leader-member communication as measured by Leader-member Exchange instrument (Graen & Cashman, 1975) does not moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting.

H_a2: Leader-member communication as measured by Leader-member Exchange instrument (Graen & Cashman, 1975) moderates the relationship between employee job satisfaction and attitude toward virtual workplace setting.

Research Question 3: Does leadership style moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting?

$H_0$3: Leadership style as measured by the Multifactor Leadership Questionnaire (Avolio, Bass, & Jung, 1995) does not moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting.

H_a3: Leadership style as measured by the Multifactor Leadership Questionnaire (Avolio et al. 1995) moderates the relationship between employee job satisfaction and attitude toward virtual workplace setting.

Descriptive Statistics

Before answering the research questions using the analysis plan, the characteristics of the responses were also examined. After exporting the data from SurveyMonkey, a preliminary data trimming for missing values was performed. Respondents with a significant portion of missing values were excluded from all analyses. The total sample prior to eliminating missing cases contained 295 responses, and after elimination, there were 145 remaining. Table 2 summarizes the gender of the participants. Three respondents of the 145 did not answer the gender question. Of the 142 valid responses to the gender question, there were 95 (66.9%) male, 45 (31.7%) female, and 2 (1.4%) transgender participants in this study. Three respondents did not answer the gender question.

Table 2

Gender Distribution of the Participants

		Frequency	Percent	Valid Percent	Cumulative Percent
	Male	95	65.5	66.9	66.9
	Female	45	31.0	31.7	98.6
	Transgender	2	1.4	1.4	100.0
	Total	142	97.9	100.0	
Missing	System	3	2.1		
Total		145	100.0		

A total of 144 of the 145 respondents answered the question about marital status. Of the 144 valid responses, 81 (56.3%) claimed to be single, 57 (39.6%) claimed to be married at the time of the study, and 6 (4.2%) claimed to be divorced at the time of the study (Table 3).

Table 3

Marital Status of the Participants

		Frequency	Percent	Valid Percent	Cumulative Percent
	Single	81	55.9	56.3	56.3
	Married	57	39.3	39.6	95.8
	Divorced	6	4.1	4.2	100.0
	Total	144	99.3	100.0	
Missing	System	1	.7		
Total		145	100.0		

In terms of measuring the socioeconomic status, a multiple-choice question was presented and the participants chose the category that fit their circumstances best. Of the valid 145 responses, 38 (26.2%) belonged to the low SES group, 99 (68.3%) belonged to the medium SES group, and eight (5.5%) belonged to the high SES group (Table 4). The SES groups in this study were categorized as the following: low = annual income < $30,000; medium = annual income between $30,000 and $100,000; high = annual income > $100,000 (per household; Fry & Kochhar, 2016; Piketty, 2017; Rose, 2016; U.S. Census Bureau, 2017).

Table 4

Participants' Socioeconomic Status Measured by Income

	Frequency	Percent	Valid Percent	Cumulative Percent

Low	38	26.2	26.2	26.2
Medium	99	68.3	68.3	94.5
High	8	5.5	5.5	100.0
Total	145	100.0	100.0	

A question regarding the size of the virtual teams was also asked, and of the 144 valid responses, 57 (39.6%) reported to have two virtual teams and 87 (60.4%) reported to have three virtual teams at their current employment (Table 5).

Table 5

Virtual Team Size Distribution of the Participants

		Frequency	Percent	Valid Percent	Cumulative Percent
	2	57	39.3	39.6	39.6
	3	87	60.0	60.4	100.0
	Total	144	99.3	100.0	
Missing	System	1	.7		
Total		145	100.0		

Participants were also asked to answer their ages in years as part of the demographic survey. Of the 144 valid responses, the minimum age was 21, and the maximum age was 64. The mean age of the sample was 31.63 with a standard deviation of 7.699. The age variable is slightly skewed to the positive direction, giving the sample a younger average but a few outliers in the higher age range (Table 6).

Table 6

Participant Age Distribution

	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness

Please provide your age in years?	144	21	64	31.63	7.699	59.271	1.683
Valid *N* (listwise)	144						

Hypothesis Testing

Hypothesis 1 asked if there is a relationship between employee job satisfaction and attitude toward virtual workplace setting? A Pearson's product moment correlation was run to answer the research question. Based on the results from the cluster graph and the actual Pearson's correlation table, the null hypothesis of the first research question can be rejected (r=.322, p<.001). Therefore, it can be concluded that job satisfaction and attitude toward telecommuting were positively correlated for the study sample—more positive attitude does tend to lead to a greater job satisfaction (Figure 6, Table 7).

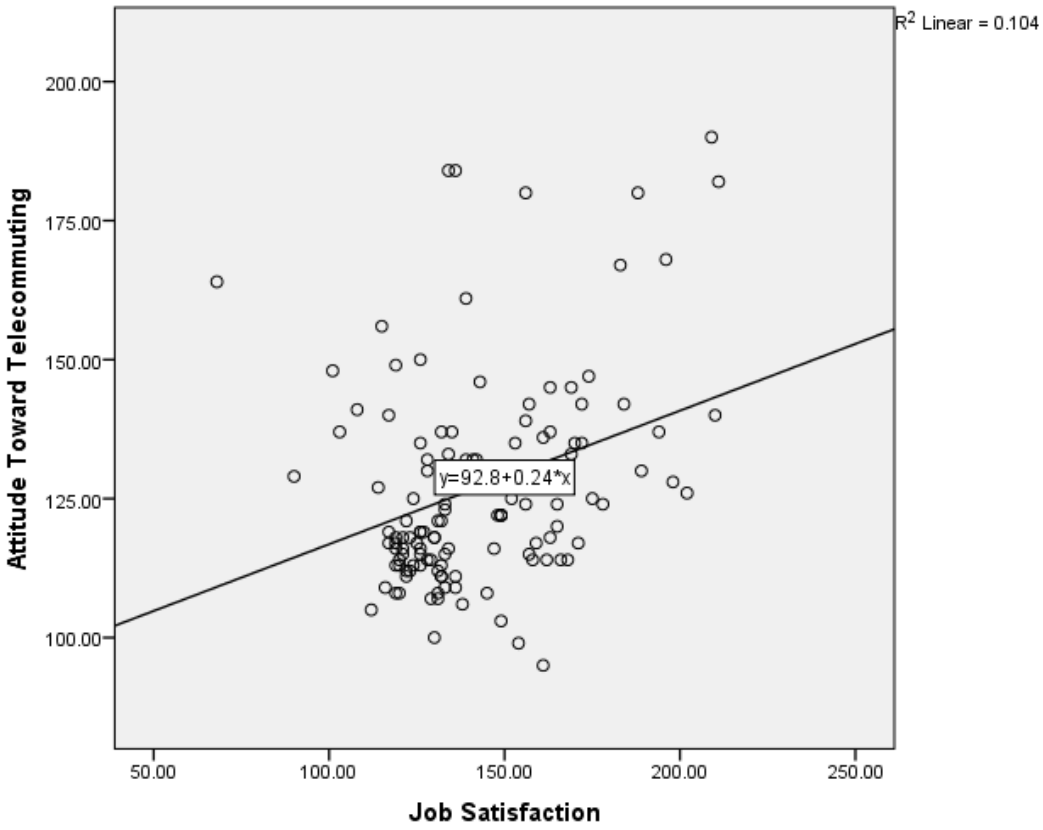


Figure 6. Cluster plot for relationship between attitude and job satisfaction.

Table 7

Pearson's Correlation Between Job Satisfaction and Attitude Toward Telecommuting

		Satisfaction	TA Total
Satisfaction	Pearson Correlation	1	.322**
	Sig. (2-tailed)		.000
	N	131	122
TA Total	Pearson Correlation	.322**	1
	Sig. (2-tailed)	.000	
	N	122	133

Note. **. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis 2 investigated the possible effect of virtual workplace on job satisfaction and if leader-member exchange will be a significant moderator of the

relationship. Hypothesis 3 examined the possible effect of virtual workplace on job satisfaction as well, but the potential moderating factor will be the 3-factor leadership styles. Two step-wise regression were run to evaluate the relationship among the variables. Before the regression models were run, assumptions needed to be checked to ensure the accuracy of the models and that no adjustment to the data were necessary.

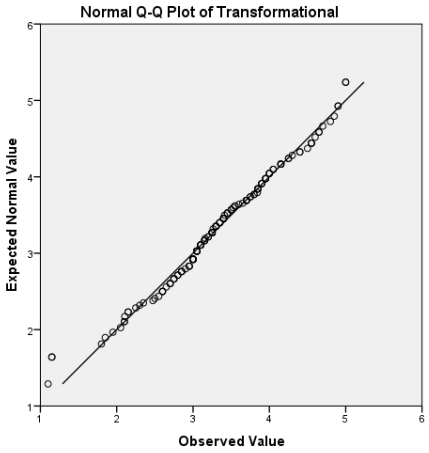
Table 8 summarizes the normality of the distributions for all the study variables. All variables appeared to be approximately normally distributed with the exception of the attitude score being slightly skewed (not significantly, however). Therefore, no adjustment was needed for the normality of the distribution.

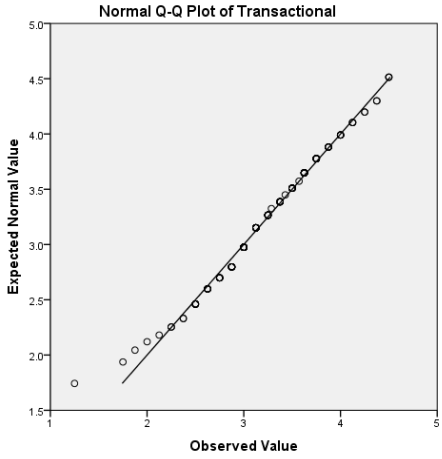
Table 8

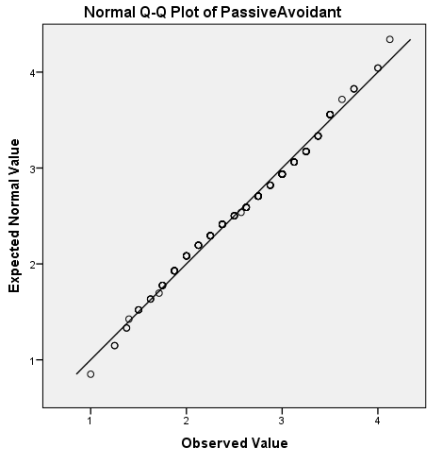
Descriptive Statistics for Normality of the Variables in the Study

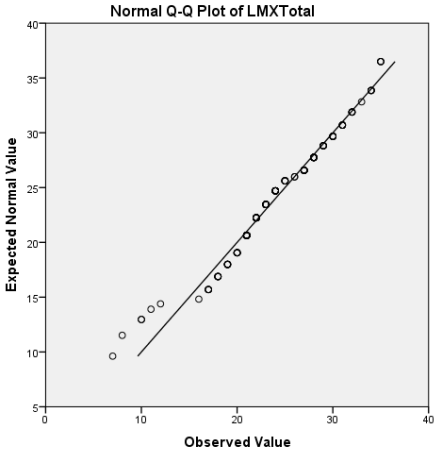
	N	Mean	Std. Deviation	Variance	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Transformational	143	3.3450	.78387	.614	-.206	.203
Transactional	143	3.2258	.56541	.320	-.222	.203
Passive Avoidant	143	2.5957	.66554	.443	-.058	.203
LMX Total	139	24.0072	5.50691	30.326	-.324	.206
Satisfaction	131	141.2137	25.47156	648.800	.646	.212
Attitude Total	133	126.7068	19.61438	384.724	1.401	.210
Valid N (listwise)	119					

Below are the series of Q-Q plots to examine the normality of the variables in terms of the residual values (Figure 7). All variables also appeared to have normally distributed residual values since there were no apparent patterns in the plots and the values mostly fall on or near the center line.


Normal Q-Q Plot of Transformational
Expected Normal Value
Observed Value
1
2
3
4
5
6


Normal Q-Q Plot of Transactional
Expected Normal Value
Observed Value
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
1
2
3
4
5


Normal Q-Q Plot of PassiveAvoidant
Expected Normal Value
Observed Value
1
2
3
4


Normal Q-Q Plot of LMXTotal
Expected Normal Value
Observed Value
5
10
15
20
25
30
35
40
0
10
20
30
40

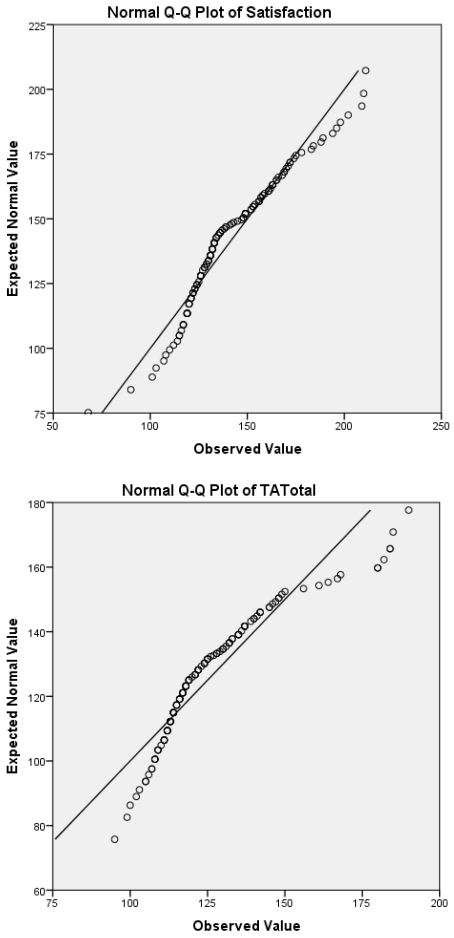


Figure 7. Q-Q plots for study variables.

To answer Research Questions 2 and 3, there were two major components evaluated from the analyses results. The first part was the *R*-squared value change. Moderation measures how much a moderating variable impacts the relationship between the independent and dependent variables. By measuring the *R*-squared change, the moderation effect can be determined. Table 9 presents the *R*-squared change from before and after the moderator was introduced to the model, and Table 10 summarizes the coefficients and their significance. Prior to the moderator, the *R*-squared value was .099, and the model was significant (t=3.596, p<.001). This indicates that attitude was a

significant predictor of job satisfaction. After the moderator Leader-Member Exchange was introduced to the model, the R-squared value increased to .550, and the coefficient of LMX was also significant (t=10.78, p<.001). The results indicate that LMX was a significant moderator for the relationship between the attitude toward telecommuting and job satisfaction. Therefore, null hypothesis two was rejected.

Table 9

Regression Summary for Research Question Two

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.315	.099	.092	24.73260
2	.742	.550	.542	17.55451

Table 10

Regression Coefficients for Research Question Two

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	*t*	Sig.
1	(Constant)	89.007	15.071		5.906	.000
	TA Total	.421	.117	.315	3.596	.000
2	(Constant)	36.427	11.756		3.099	.002
	TA Total	.229	.085	.171	2.688	.008
	LMX Total	3.207	.297	.687	10.782	.000

Note. Dependent Variable: Satisfaction

Prior to answering research question three, a collinearity diagnostic was run because there were three potential moderators. Based on the collinearity diagnostics, the

three leadership style variables did not share significant commonalities, and therefore, they can be used in the same model as unique predictors (Table 11).

Table 11

Collinearity Diagnostics for Leadership Type Variables

				Variance Proportions			
Model	Dimension	Eigen-value	Condition Index	(Constant)	Trans-formational	Trans-actional	Passive Avoidant
1	1	3.889	1.000	.00	.00	.00	.00
	2	.084	6.795	.00	.10	.02	.42
	3	.015	15.928	.23	.86	.30	.34
	4	.011	18.603	.77	.04	.68	.23

Note. Dependent Variable: Satisfaction

Similarly to the methods used in research question two, a step-wise regression was used and the two major components were evaluated. Table 12 presents the *R*-squared change from before and after the moderators were introduced to the model, and Table 13 summarizes the coefficients and their significance. Prior to the moderator, the *R*-squared value was .104, and the model was significant (t=3.726, p<.001). This indicates that attitude was a significant predictor of job satisfaction. After the moderators—the three leadership styles—were introduced to the model, the *R*-squared value increased to .636, and the coefficients of transformational leadership (t=8.842, p<.001) and passive avoidant (t=-5.284, p<.001) leadership style showed significance. The results indicate that two leadership styles were significant moderators. Specifically, transformational leadership had a positive impact on the relationship between attitude and job satisfaction,

and passive avoidant leadership style had a negative impact on the relationship. Therefore, null hypothesis three was rejected as well.

Table 12

Regression Summary for Research Question Three

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.322	.104	.096	24.54757
2	.797	.636	.623	15.84922

Note. Predictors: (Constant), TA Total, Transactional, Passive Avoidant, Transformational

Table 13

Regression Coefficients for Research Question Three

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	*t*	Sig.
1	(Constant)	87.311	14.875		5.870	.000
	TA Total	.432	.116	.322	3.726	.000
2	(Constant)	98.643	14.794		6.668	.000
	TA Total	.133	.078	.099	1.700	.092
	Transformational	21.155	2.393	.666	8.842	.000
	Transactional	-4.282	3.142	-.098	-1.363	.176
	Passive Avoidant	-11.802	2.234	-.313	-5.284	.000

Note. Dependent Variable: Satisfaction

Summary

This chapter presented the characteristics of the participants using summary statistics and the relationships between variables using inferential statistics. Descriptive

statistics and assumptions testing showed that the data were diverse and normally distributed for the analyses needed for the results section. Correlation and regression models were utilized to answer the hypotheses. From the results, it was concluded that there is a significant relationship between attitude toward telecommuting and job satisfaction. Furthermore, there are moderating variables that significantly impact the relationship between the two variables. Leader-member exchange and transformational leadership style significantly and positively impact the relationship between attitude and job satisfaction, while passive avoidant leadership style significantly and negatively impacts the relationship. Chapter 5 will discuss the results further, compare findings with current literature, summarize the current research, as well as make recommendations to future research in similar disciplines.

Chapter 5. Discussion, Implications, and Recommendations

The purpose of the quantitative study was to examine if employee job satisfaction predicts attitude toward virtual workplace setting and if this relationship is moderated by leader-member communication and leadership style. In this study, the researcher raised three research questions and provided the null and alternative hypotheses for each.

The research questions and hypotheses of the study were:

Research Question 1: Is there a relationship between employee job satisfaction and attitude toward virtual workplace setting?

$H_0$1: There is no relationship between employee job satisfaction as measured by the Job Satisfaction Survey and attitude toward virtual workplace setting as measured by Clark et al. (2012) instrument.

H_a1: There is a relationship between employee job satisfaction as measured by the Job Satisfaction Survey and attitude toward virtual workplace setting as measured by Clark et al.'s (2012) instrument.

Research Question 2: Does leader-member communication moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting?

$H_0$2: Leader-member communication as measured by Leader-member Exchange instrument (Graen & Cashman, 1975) does not moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting.

H_a2: Leader-member communication as measured by Leader-member Exchange instrument (Graen & Cashman, 1975) moderates the relationship between employee job satisfaction and attitude toward virtual workplace setting.

Research Question 3: Does leadership style moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting?

H_03: Leadership style as measured by the Multifactor Leadership Questionnaire (Avolio, Bass, & Jung, 1995) does not moderate the relationship between employee job satisfaction and attitude toward virtual workplace setting.

H_a3: Leadership style as measured by the Multifactor Leadership Questionnaire (Avolio et al. 1995) moderates the relationship between employee job satisfaction and attitude toward virtual workplace setting.

There are four objectives for this chapter: summarize and explain the findings, interpret the results using existing literature, provide the implications, and make recommendations for future researchers.

Summary of Findings

The main data for this study is derived from a survey conducted among 145 virtual workers, 18 years old and above, all races and gender. Among the 145 participants, 95 (66.9%) were male, 45 (31.7%) were female, and two (1.4%) were transgender participants. The youngest was 21 and the oldest was 64. Among the same pool of survey participants, 81 were single, 57 were married at the time of the study, and six were divorced. Of the valid 145 responses, 38 (26.2%) belonged to the low socioeconomic status (SES) group or earning less than < $30,000 annually, 99 (68.3%)

belonged to the medium SES group or earning between $30,000 and $100,000, and eight (5.5%) belonged to the high SES group or earning > $100,000 (per household). The participants also shared the size of their virtual teams and findings revealed that 60.4% have at least three virtual teams at their current employment while the rest have only two.

Data collected revealed important findings for the first research question, which asked if a relationship exists between employee job satisfaction and attitude toward virtual workplace setting. A cluster graph and the actual Pearson's correlation showed the job satisfaction and attitude toward telecommuting positively correlated for the participants. A more positive attitude towards the virtual workplace setting was found related to feeling greater job satisfaction.

Research question two and three were analyzed at the same time. Research question two investigated the possible effect of attitude toward virtual workplace on job satisfaction and if the leader-member exchange is a statistically significant moderator of the relationship, while research question three examined the possible effect of attitude toward virtual workplace on job satisfaction and whether specific leadership styles can act as a moderating variable. Findings from the two step-wise regression revealed that attitude was a significant predictor of job satisfaction and that LMX was a significant moderator of the relationship between the attitude toward telecommuting and job satisfaction. Data gathered and analyzed for the third research question revealed again that attitude was a significant predictor of job satisfaction and that two leadership styles were significant moderators. Particularly, transformational leadership had a positive

impact on the relationship between attitude and job satisfaction, and passive avoidant leadership style had a negative impact on the relationship.

Implications of the Findings

The findings revealed a significant relationship between attitude toward telecommuting and job satisfaction. In addition, certain moderating variables significantly affected this relationship. Particularly, the leader-member exchange and transformational leadership styles significantly and positively affect the relationship between attitude and job satisfaction, while passive avoidant leadership style significantly and negatively affects the relationship between attitude and job satisfaction. The findings also have certain implications based on the theoretical framework chosen to support the study.

As confirmed by past literature, there is a significant relationship between attitude towards virtual jobs and job satisfaction. Zhu (2013) has, in particular, found that attitude is the paramount psychological determinant of employee job satisfaction or dissatisfaction, including virtual settings. A positive attitude has also been found to successfully improve a person's aptitude to work in a virtual setting while a negative attitude can serve as hindrance of the employee's productivity, job effectiveness, and overall level of job satisfaction (Zhu, 2013).

The second finding was that leadership-member exchange or communication serves as a positive moderator of the relationship between attitudes towards work in a virtual setting and job satisfaction, which is supported by existing research (Smith et al., 2015). Personality characteristics of conscientiousness, openness, extraversion, and

agreeableness are linked to better communication, skills, and higher levels of job satisfaction (Smith et al., 2015). This conclusion is based on research on workplace habits. The more opportunities for employees to communicate within the workplace, the more satisfied they become. The same finding has been established by those who focused on virtual settings. For example, Cogliser et al. (2013) explored and identified the structure of communication and information exchange in virtual group and found that communication and information exchange in virtual groups adhered to four dimensions: unified generalized, unified generalized with isolates, unified balanced, and unified balanced with isolates (Cogliser et al., 2013). Virtual project team categorized as unified generalized, compared with unifying balanced, failed to evidence enhanced levels of member support and satisfaction or performance; however, for both categories when isolates were added, team performance and levels of satisfaction suffered (Cogliser et al., 2013).

These past studies did not focus on the effects of the exchanges between the members and the leaders in a virtual setting. This gap was addressed by the current study. Because of the analysis conducted, it is now possible to prove that the relationship between employees in a virtual setting's attitudes and job satisfaction can be strengthened or weakened by the quality of their exchanges with their leaders.

The second finding highlights the role that leadership can play in improving job performance as well as satisfaction, no matter the setting of the workplace (Aktas et al., 2015; Braun et al., 2013; Cogliser et al., 2013). This also corresponds with past findings. Most of the past studies have revealed trust, particularly leader-related trust, to be a

mediating variable, for job satisfaction (Braun et al., 2013). These studies did not evaluate the role that leader-member exchange could play in strengthening or weakening the relationship between attitude and job satisfaction. Instead, they have established that this exchange, which can serve to facilitate trusting relationships, can lead to higher levels of job satisfaction (Aktas et al., 2015; Lewis, 2014). Leaders who display cultural tightness with their workers may promote individual worker autonomy and job satisfaction. These findings applied to jobs in virtual settings (Aktas et al., 2015).

The effect of leadership in the traditional environment has been researched for decades. The evidence of its influence on the employees' performance, satisfaction, and loyalty has grown and is still growing (Çakmak et al., 2015; Choudhary et al., 2013; Day & Antonakis, 2013; Grant, 2012; Lam & O'Higgins, 2012; Lewis, 2014; Pauliene, 2013; Purvanova, 2014; Shurbagi, 2014; Tse & Chiu, 2001). The literature on the value of virtual team leadership might not be as robust as the ones done in the traditional setting but also offered evidence on its strong effects on the employees. First, literature done in the virtual setting showed that leaders require a unique set of skills (Carter et al., 2014). Leaders in these settings were likely to successfully influence employees to be more productive and satisfied if they displayed high levels of extroversion, cognitive ability, self-efficacy, and leadership emergence. These traits affected the relationship between leadership and employees' performance and satisfaction in the virtual setting (Serban et al., 2015).

A body of literature supports that leader-member exchange is a positive variable between attitudes and job satisfaction of virtual employees. Past studies have shown job

satisfaction to be correlated and/or moderated by choice of electronic media used for communication (Balthazard et al., 2009) and use of specific communication skills was also deemed significant to effective leadership (Fan et al., 2014). Specifically, constructive and encouraging use of language was demonstrated as more effective for leaders who seek to inspire (Fan et al., 2014). In fact, both motivational language and the provision of feedback through email were perceived differently by virtual team members based on type of language used by leaders (Fan et al., 2014).

Literature is also replete with studies on the specific types of leadership style that are effective in a virtual setting (Carter et al., 2014; Serban et al., 2015). Particularly, researchers suggested that transformational leadership characteristics work equally well in virtual settings as in face-to-face settings (Balthazard et al., 2009). The findings also revealed that job satisfaction was enhanced when leaders were transformational. This is not surprising as there are past researchers who have explained that as transformational leaders exhibit higher degrees of socially oriented behaviors, both teams and individual team members trust them more (Cogliser et al., 2012). Studies have shown that virtual workplaces are led better by leaders who can provide their employees with resources to effectively perform their tasks (Carter et al., 2014). They must be flexible, as the demands of leading virtual teams change as projects and team compositions change (Nydegger & Nydegger, 2010). The leaders who will be effective in virtual settings are those who can build and facilitate close relationships. Not only will performance of the employees improve, their job satisfaction levels also increase (Hoch & Koslowski, 2014; Schmidt, 2014). Effective virtual leaders are those who can foster relationship building as

a success strategy (Hoch & Koslowski, 2014; Schmidt, 2014). Successful leaders utilize the transformational leadership style. The current study indicated that transformational leadership style could strengthen the relationship between positive attitudes toward virtual work and satisfaction with virtual jobs.

Lastly, the results of the current study revealed that the leadership style that is not effective: passive avoidant leadership. It has a negative impact on the relationship between attitudes toward virtual settings and job satisfaction. This is supported by existing literature. Passive avoidant leaders, who are known to be leaders refusing to take on active roles and tasks to manage and lead their companies are not going to be able to provide for the needs of the virtual employees (Greer & Payne, 2014; Kerfoot, 2010; Verberg et al., 2013). Even if an employee's positive views about virtual work could increase their job satisfaction, a leader who is passive avoidant can weaken this (Greer & Payne, 2014; Kerfoot, 2010; Verberg et al., 2013).

Furthermore, project managers stressed the need for organizational and technical support throughout the project process (Verberg et al., 2013). Job requirements for the virtual leader also vary slightly, particularly about communication and the perceptions upon team members of the need for an immediate response. This is particularly important in the geographically distributed setting. For example, virtual leaders must be available 24/7 to respond to needs of virtual workers and teams (Greer & Payne, 2014; Kerfoot, 2010).

This study contributes to the soundness of the theories of job demands-resources model by Bakker and Demerouti's (2007) and media richness theory by Daft and

Lengel's (1986). According to the job demands-resources model, different factors can positively or negatively affect the wellbeing of employees (Bakker & Demerouti, 2007). The job demands-resources model focuses on the positive and negative factors that affect the wellbeing of employees in organizations (Bakker & Demerouti, 2007). Within this framework, job demands are any physical, psychological, social, or organizational factors that can strain or negatively affect the performance of employees such as work pressure. Conversely, job resources are any factors that can positively affect the performance of employees such as the availability or absence of organizational resources (Bakker & Demerouti, 2007). The results of the current study confirmed that factors such as leadership style and leader-member communication are factors that can affect the job satisfaction of employees and their attitudes toward the virtual workplace.

This current study adds to the strength of the media richness theory in depicting the distinction between communication channels used in traditional and virtual employment settings. How employees communicate with their managers in the traditional companies differs from how employees communicate with their managers in virtual settings. In particular, there are more communication barriers in virtual settings than the traditional workplace because of the lack of transmission of social cues in virtual workspaces (Daft & Langel, 1986). Findings suggests that virtual companies have to do more to ensure open and strong communication lines between leaders and the employees so that employees will be more satisfied with their work. Open and quality leader-member communication in virtual workplace settings could significantly affect the

relationship between employee job satisfaction and attitude toward virtual workplace, strengthening the theory.

Recommendations for Actual Practice and Leadership

This section will discuss the application of findings, to whom the findings can be applied, and how society can act differently with these findings in place are presented. Recommendations of further application to the field of leadership are also presented.

The main strength of this study is uncovering factors that may affect job satisfaction of employees working in virtual settings. Virtual company leaders can use the results of this study to enhance their employees' satisfaction, which is critical for organizational success. Past research indicated that employees who work in virtual settings have high job satisfaction in general (Sardeshmukh et al., 2012), and the findings in the current study revealed factors such as leader-member communication and leadership style have great value.

Virtual companies hoping to see the level of job satisfaction of their employee's increase can use the insights revealed in this study. First, they should acknowledge that that satisfaction is closely linked to commitment and performance and, therefore, must be doing all to improve the levels of satisfaction of their employees. Past studies showed that despite the advantages of working in a virtual environment, leader-member communication can be challenging in virtual workplaces because of the absence of traditional face-to-face communication channels (Hoch & Kozlowski, 2014; Lockwood, 2015). In the current study, the researcher found that high quality of exchange between

leaders and employees could lead to higher levels of satisfaction among virtual employees.

A better understanding of the unique leadership needs in the virtual workplace was established with this study. Another strength of the transformational leadership style was highlighted because the researcher found that it has the ability to moderate the relationship between attitude towards work and job satisfaction for virtual employees. On the other hand, another weakness of the passive avoidant leadership style had been emphasized because the researcher found that it could negatively affect satisfaction and working experiences of employees in a virtual setting. Virtual companies influenced by these findings will possibly ensure their leaders are not those who will avoid their responsibilities of supporting, motivating, communicating, and leading.

At the start of this research, it was hoped that the study's findings could lead to positive social change. Overall, a deeper understanding of the different leadership styles and communication factors that affect telecommuters' job satisfaction was achieved. This better understanding can enable company leaders to ensure the positive experiences for future virtual workers through better quality communication exchanges and leadership experiences. These findings are timely as virtual workplaces become more commonplace.

Recommendations for Future Research

As there are strengths and unique contributions from this study, there are also several limitations that future researchers are encouraged to address. First, as the data has been anonymously collected from subjects, it was not possible to determine which subjects are part of the same team within companies or are rating the style of the same

leader. Workers who were actually from just one team might be commonly experiencing certain work-related aspects affecting their respondents, independent of their leader but related to the composition of their team. All these non-leadership related factors can affect their assessment of job satisfaction, the perception of virtual work, and leader-member communication. In addition, certain members of a specific team could be enjoying and feeling satisfied with their work because they get along, even though their leaders are not transformational or communicating with them. The current researcher has acknowledged these limitations, describing this as the effect of clustering, where subjects within a cluster have correlated errors, and subjects in different clusters have independent errors (Cameron et al., 2011). Future researchers who are going to use qualitative methods to go more in-depth with the responses of the participants will not have to deal with this limitation. Instead, this method may enable them to gather more insights as to how leadership style and communication skills affect virtual employees' attitudes and job satisfaction.

Additionally, this study only included subjects in the United States workforce. With most virtual work settings increasingly comprised of employees globally, future researchers can expand similar studies to a global workforce and possibly provide deeper findings. While the number of virtual employees in the United States has grown significantly, making it appropriate to examine the dynamics of virtual work force cultures in the United States specifically, most virtual teams are composed of employees residing in many countries. International virtual work cultures may be different from those bound within the United States due to cultural and linguistic differences (Klitmoller

& Lauring, 2013). Their attitudes toward virtual work, their perception of leadership, and their job satisfaction are also worth examining.

The researcher had gathered the demographic information of the participants, such as their age, gender, and socioeconomic statuses for descriptive purposes. Future researchers can investigate each of these factors: age, gender, and socioeconomic status. Can any of these factors affect the attitudes of employees toward the virtual setting and their job satisfaction in the virtual setting? Will the same variables act as moderating variables in the relationship between attitudes and job satisfaction of virtual workers? Past studies have shown inconclusive findings on the impact of gender on the relationship between attitude and satisfaction in a virtual setting. What role does gender play in the job satisfaction of virtual workers? Some studies claimed that more males have negative attitudes toward working in a virtual setting and therefore, less satisfied. They view these jobs as less masculine and felt stigmatized if they opt for virtual employment (Vandello et al., 2013). However, there are also studies that showed that regardless of gender, most view jobs in the virtual settings as a win-win situation because they can save on many costs. Males and females both viewed transportation savings offered by virtual employment opportunities positively (Bailey & Kurland, 2002; Hill et al., 2003). The current study also faced this limitation with regard the moderating effects of gender. As the researcher did not test the effects of gender or race on the relationship, whether gender acts as moderating variable remains questionable and should be addressed by future researcher. Future researchers can try to assess the impact of gender in a more in-depth manner.

Summary

The virtual workplace is different from traditional workplace settings, particularly in the isolation that telecommuters often experience from other employees and their managers, potentially contributing to lower job satisfaction (Harrington & Santiago, 2015). However, attitudes toward work and satisfaction are believed to be valuable in both traditional and virtual settings. The disadvantages associated with virtual environment such as decreased communication effectiveness suggest that certain conditions or factors should be present in the workplace for higher levels of employee satisfaction (Zhang, 2016). Because leader-member communication and leadership style have been found to be related to employee job satisfaction (Irby, 2014; Loi et al., 2014), the researcher evaluated their roles in a virtual worker's attitude towards virtual workplaces. The researcher found more positive attitude towards the virtual workplace setting is related to feeling greater job satisfaction and that the quality of leadership-member exchange as well as transformational leadership style can mediate the relationship between attitude toward telecommuting and job satisfaction. Passive avoidant leadership, on the other hand, can lead to lower job satisfaction.

Despite the trend of more companies turning virtual, many current organization leaders are still unaware of the strengths, perceptions, or merits associated with this newer workplace structure and setting, especially on how they can improve the job satisfaction of their employees. Virtual companies hoping to have satisfied and productive employees should recognize that their leaders have the most important roles to play in the process.

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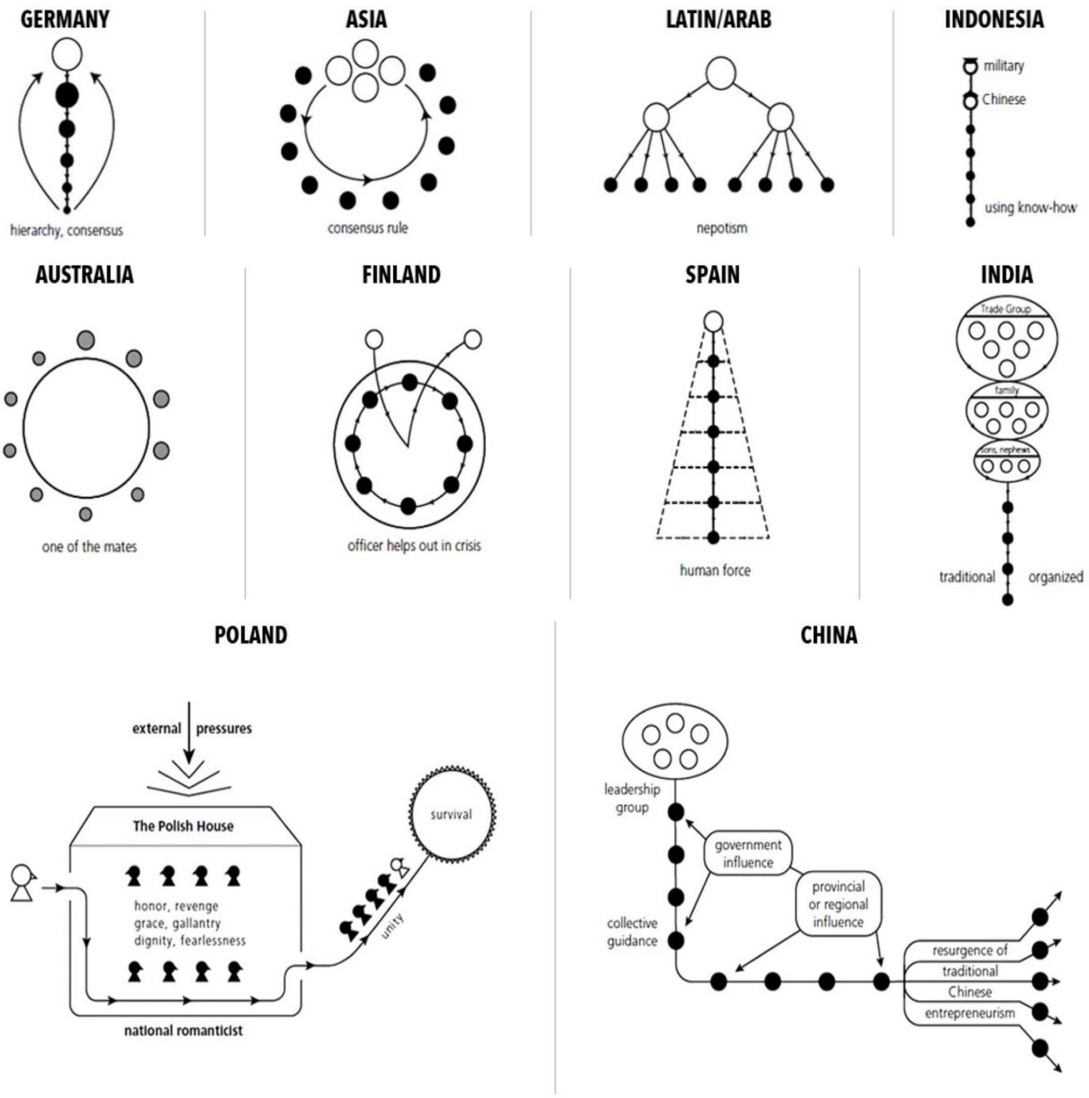
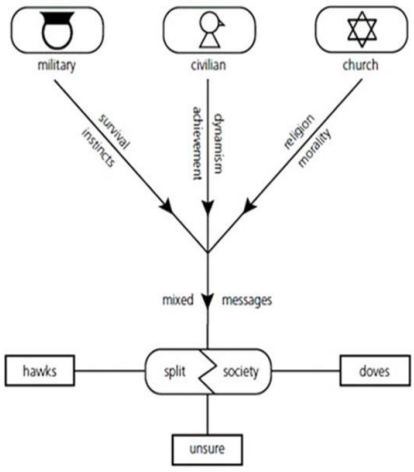
Appendix A: Definitions of Virtual Work as Evidenced in the Literature

Term used	Definition	Publication
Distributed work	Employees work over geographical boundaries and to some extent work with computer-mediated communication in order to achieve a common goal	Bosch-Sijtsema, P. M., & Sivunen, A. (2013)
Flexible work arrangements	Alternative work options that allow work to be accomplished outside of the traditional temporal and/or spatial boundaries of a standard workday	Shockley, K. M., & Allen, T. D. (2007)
Remote work	A work arrangement in which the employee resides and works at a location beyond the local commuting area of the employing organization's worksite; generally includes full-time telework and may result in a change in duty location to the alternative worksite	U.S. Office of Personnel Management. (2013)
Telecommuting	The use of telecommunications technology to partially or completely replace the commute to and from work	Mokhtarian, P. L. (1991a)
	Working some portion of time away from the conventional workplace, often from home, and communicating by way of computer-based technology	Golden, T. D. (2006b)
	Work conducted from home that is often supported by telecommunications technology	Kossek, E. E., Lautsch, B. A., & Eaton, S. C. (2006)
	Work arrangement in which employees perform their regular work at a site other than the ordinary workplace, supported by technological connections	Pinsonneault, A., & Boisvert, M. (2001)
	The use of information and communication technologies to replace or substitute for work environments that require individuals to commute to a traditional office	Bélanger, F., Watson-Manheim, M. B., & Swan, B. R. (2013)
	Systems that enable employees to perform regular, officially assigned duties at home or at alternative work sites geographically convenient to their residences	Pearce, J. (2009)
Telework	Work performed by (a) those whose remote work is from the home or a satellite office, (b) those whose telework is primarily in the field, and (c) those whose work is "networked" in such a way that they regularly work in a combination of home, work, and field contexts	Morganson, V. J., Major, D. A., Oborn, K. L., Verive, J. M., & Heelan, M. P. (2010)
	A form of work organization in which the work is partially or completely done outside the conventional company workplace with the aid of information and telecommunication services	Konradt, U., Schmook, R., & Malecke, M. (2000)
	Work that relies on technology-mediated communication and sophisticated information-processing capabilities instead of colocation for the production and delivery of work outputs	Garrett, R. K., & Danziger, J. N. (2007)
	A work arrangement in which employees perform their regular work at a site other than the ordinary workplace, supported by technological connections	Fonner, K. L., & Roloff, M. E. (2010)
Virtual teams	Spatially or geographically dispersed work arrangements that are generally characterized by a relatively short life span, technology-enhanced communications, and a dearth of face-to-face interaction	Tworoger, L. C., Ruppel, C. P., Gong, B., & Pohlman, R. A. (2013)

Appendix B: Leadership Preferential Styles by Country

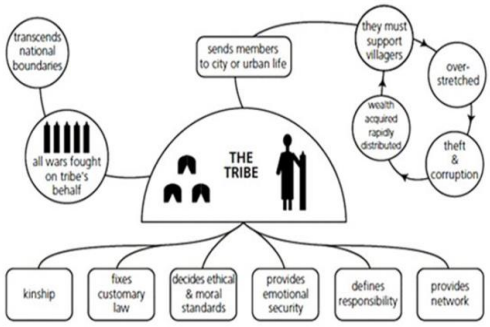


ISRAEL

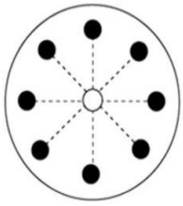


Multiple leadership

BLACK SOUTH AFRICA

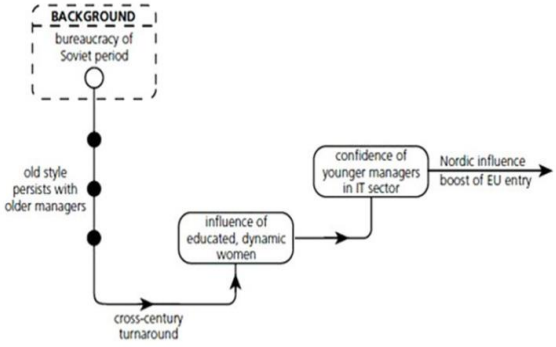


NORWAY

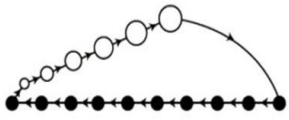


boss, but friendly

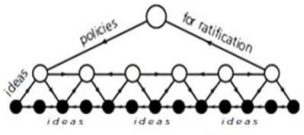
LITHUANIA



NETHERLANDS

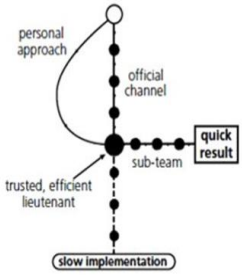


JAPAN

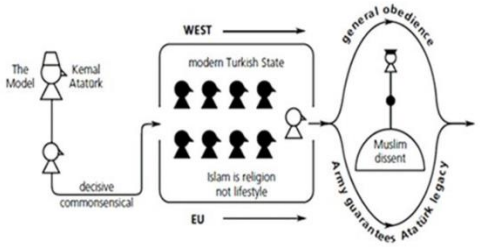


ringi-sho consensus

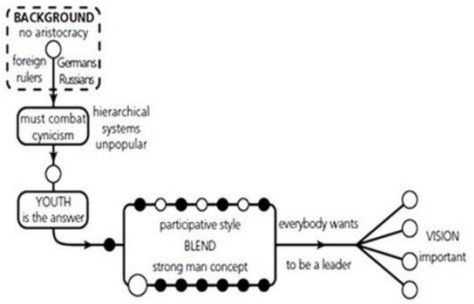
RUSSIA



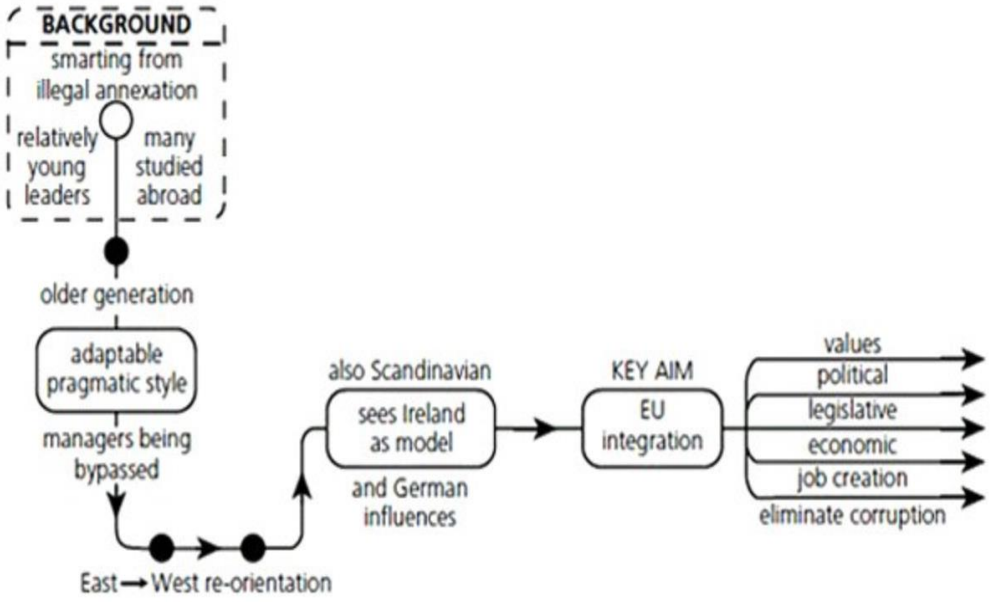
TURKEY



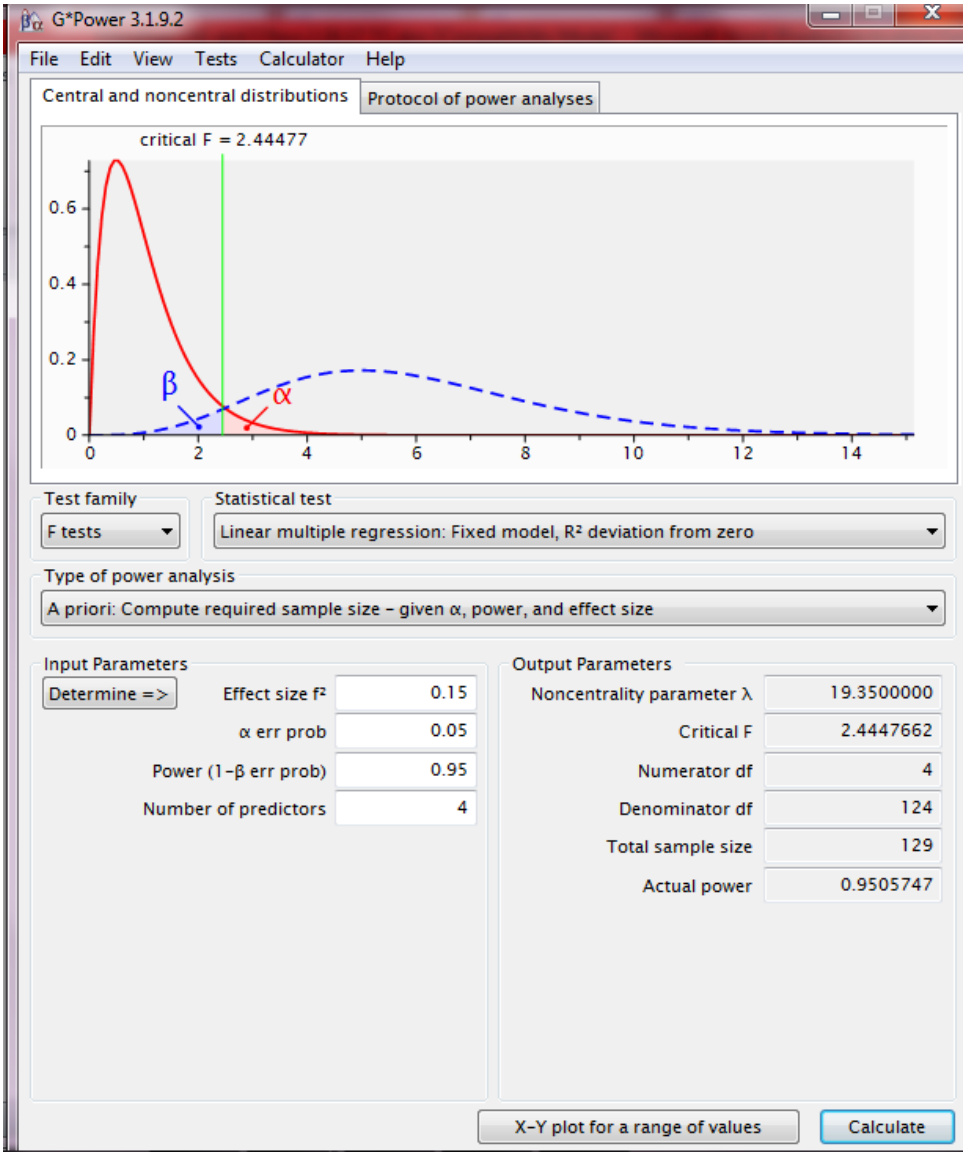
ESTONIA



LATVIA



Appendix C: G*Power Analysis



Power analysis using G*power for F-test (linear multiple regression: R2 deviation from zero) was used to determine the appropriate sample size. With an effect size f2= 0.15 (medium effect size), alpha error probability of .05 and 95% power, and four predictor variables, the minimum target sample is 129 participants.

Appendix D: Telecommuting Attitudes Scale

Gmail Rebecca Mansfield <rebeccamansfield1@gmail.com>

Principal Component Analysis of Telecommuting Attitudes Scale

Karau, Steve <skarau@business.siu.edu> Mon, Feb 6, 2017 at 12:00 PM
To: Rebecca Mansfield <rebeccamansfield1@gmail.com>, "La.Clark@mtsu.edu" <La.Clark@mtsu.edu>

The scale, which may be simply referred to as the Telecommuting Attitudes Scale (principal component analysis was just one of the statistical methods used to establish and verify the factor structure for the scale), is described in the attached article (see Appendix 2 for items). It may be used for research purposes by any interested party with appropriate reference to this article. Good luck with your dissertation research!

From: Rebecca Mansfield [mailto:rebeccamansfield1@gmail.com]
Sent: Monday, February 06, 2017 1:51 PM
To: La.Clark@mtsu.edu; Karau, Steve <skarau@business.siu.edu>
Subject: Re: Principal Component Analysis of Telecommuting Attitudes Scale

[Quoted text hidden]

Clark et al (2012).pdf
1182K

Item
I think I would be most productive in a traditional office setting.*
I like working in a well-structured office environment.*
I work best in a standard office environment in which all resources are readily available to me.*
I would prefer to come into the office, get my work done, and go home.*
I prefer the traditional workplace over telecommuting.*
I enjoy working in an environment where clear direction is provided about what to do and when.*
In general, I prefer the social interaction found at the conventional workplace.*
A standard office setting provides the most efficient workplace.*
I work better away from the traditional office.
I like to have my work routine decided and laid out for me by others.*
When telecommuting, I would miss out on social interactions in the office.*
I work better in the presence of others than on my own.*
Telecommuting would allow me to do more of what I want to do.
I would have a more relaxed work atmosphere when telecommuting.
Telecommuting would allow me to work the way I want to.
Telecommuting would make it easier for me to pursue personal interests.
When telecommuting, I can do a better job taking care of non-work demands.
Telecommuting would cause me to be isolated from my peers at work.*
I would welcome the flexible work hours that telecommuting offers.
Telecommuting would provide me with less freedom to work on projects that interest me.*
Telecommuting is a good work arrangement.
Telecommuting would certainly reduce my stress level.
Telecommuting would allow me to avoid time-wasting office distractions.
Telecommuting would allow me to work with disagreeable coworkers.
Telecommuting would give me less flexibility.*
My stress level would be reduced if I telecommute.

Continued on Next Page

Item
By telecommuting, I can avoid interruptions that occur at work.
Telecommuting would allow me to work in the manner that is most effective for me.
Telecommuting usually leads to negative consequences.*
I may miss important work events or communications if I telecommute.*
It would be difficult to feel part of the work team while telecommuting.*
It is a mistake to telecommute.*
Telecommuting would make me less visible to company management.*
Telecommuting would make it hard to find the right materials and information when needed.*
My supervisor may pass me over at promotion time if I telecommute.*
Telecommuting should be avoided if at all possible.*
I believe you have to be seen at the office to be taken seriously.*
Telecommuting would cause me to be isolated from my peers at work.*
When telecommuting, it would be difficult to share experiences with coworkers.*
Others may have difficulty reaching me if I telecommute.*
I fear I would be lonely if I telecommute.*
My work efforts will be better rewarded if I telecommute.
Telecommuting would enhance my ability to get promoted.
Management will view me more positively if I telecommute.
Telecommuting would enhance my career development.
Telecommuting would allow me to enhance my social ties with others.
If I telecommute, others would believe that I am more committed to my job.
Telecommuting would actually increase my social stimulation.
Telecommuting would make it easier to coordinate my work with others.
I would feel more connected to my work when telecommuting.
I would be the most productive while telecommuting.

Item
Telecommuting would allow me to do more of what I want to do.
Telecommuting would allow me to work the way I want to.
Telecommuting would make it easier for me to pursue personal interests.
When telecommuting, I can do a better job taking care of non-work demands.
I would welcome the flexible work hours that telecommuting offers.
I would have a more relaxed work atmosphere when telecommuting.
Telecommuting would allow me to work in the manner that is most effective for me.
Telecommuting would give me less flexibility.*
Telecommuting would allow me to avoid time-wasting office distractions.
Telecommuting would provide me with less freedom to work on projects that interest me.*
My supervisor may pass me over at promotion time if I telecommute.*
Telecommuting would cause me to be isolated from my peers at work.*
Telecommuting usually leads to negative consequences.*
I fear I would be lonely if I telecommute.*
Telecommuting would make me less visible to company management.*
It is a mistake to telecommute.*
I believe you have to be seen at the office to be taken seriously.*
When telecommuting, it would be difficult to share experiences with coworkers.*
I may miss important work events or communications if I telecommute.*
Others may have difficulty reaching me if I telecommute.*
Telecommuting would make it hard to find the right materials and information when needed.*
I think I would be most productive in a traditional office setting.*
I like working in a well-structured office environment.*
I work best in a standard office environment in which all resources are readily available to me.*
In general, I prefer the social interaction found at the conventional workplace.*

Continued on Next Page

Item
I enjoy working in an environment where clear direction is provided about what to do and when.*
I would prefer to come into the office, get my work done, and go home.*
A standard office setting provides the most efficient workplace.*
I work better in the presence of others than on my own.*
Telecommuting would actually increase my social stimulation.
If I telecommute, others would believe that I am more committed to my job.
Telecommuting would enhance my ability to get promoted.
Telecommuting would allow me to enhance my social ties with others.
My work efforts will be better rewarded if I telecommute.
I would feel more connected to my work when telecommuting.
Management will view me more positively if I telecommute.
Telecommuting would make it easier to coordinate my work with others.
Telecommuting would enhance my career development.

Appendix E: Job Satisfaction Survey

Job Satisfaction Survey, JSS Page

JSS overview

JSS scoring instructions

JSS score interpretation How do you know if someone is satisfied or dissatisfied?

JSS bibliography

JSS norms

Sharing results

JSS scale: Original English

Translations of the JSS

JSS development article From American Journal of Community Psychology, 1985. Adobe (.pdf) format

Home

Note: The JSS is a copyrighted scale. It can be used free of charge for noncommercial educational and research purposes, in return for the sharing of results. See the "Sharing of results" page above for instructions. The JSS is copyright © 1994, Paul E. Spector, All rights reserved. All reproductions of the JSS should include this copyright notice.

Page last modified July 10, 2011.

	JOB SATISFACTION SURVEY Paul E. Spector Department of Psychology University of South Florida Copyright Paul E. Spector 1994, All rights reserved.	
	PLEASE CIRCLE THE ONE NUMBER FOR EACH QUESTION THAT COMES CLOSEST TO REFLECTING YOUR OPINION ABOUT IT.	Disagree very much / Disagree moderately / Disagree slightly / Agree slightly / Agree moderately / Agree very much
1	I feel I am being paid a fair amount for the work I do.	1 2 3 4 5 6
2	There is really too little chance for promotion on my job.	1 2 3 4 5 6
3	My supervisor is quite competent in doing his/her job.	1 2 3 4 5 6
4	I am not satisfied with the benefits I receive.	1 2 3 4 5 6
5	When I do a good job, I receive the recognition for it that I should receive.	1 2 3 4 5 6
6	Many of our rules and procedures make doing a good job difficult.	1 2 3 4 5 6
7	I like the people I work with.	1 2 3 4 5 6
8	I sometimes feel my job is meaningless.	1 2 3 4 5 6
9	Communications seem good within this organization.	1 2 3 4 5 6
10	Raises are too few and far between.	1 2 3 4 5 6

11	Those who do well on the job stand a fair chance of being promoted.	1 2 3 4 5 6
12	My supervisor is unfair to me.	1 2 3 4 5 6
13	The benefits we receive are as good as most other organizations offer.	1 2 3 4 5 6
14	I do not feel that the work I do is appreciated.	1 2 3 4 5 6
15	My efforts to do a good job are seldom blocked by red tape.	1 2 3 4 5 6
16	I find I have to work harder at my job because of the incompetence of people I work with.	1 2 3 4 5 6
17	I like doing the things I do at work.	1 2 3 4 5 6
18	The goals of this organization are not clear to me.	1 2 3 4 5 6

	PLEASE CIRCLE THE ONE NUMBER FOR EACH QUESTION THAT COMES CLOSEST TO REFLECTING YOUR OPINION ABOUT IT. Copyright Paul E. Spector 1994, All rights reserved.	Disagree very mcuh / Disagree moderately / Disagree slightly / Agree slightly / Agree moderately / Agree very much
19	I feel unappreciated by the organization when I think about what they pay me.	1 2 3 4 5 6
20	People get ahead as fast here as they do in other places.	1 2 3 4 5 6
21	My supervisor shows too little interest in the feelings of subordinates.	1 2 3 4 5 6
22	The benefit package we have is equitable.	1 2 3 4 5 6
23	There are few rewards for those who work here.	1 2 3 4 5 6
24	I have too much to do at work.	1 2 3 4 5 6
25	I enjoy my coworkers.	1 2 3 4 5 6
26	I often feel that I do not know what is going on with the organization.	1 2 3 4 5 6
27	I feel a sense of pride in doing my job.	1 2 3 4 5 6
28	I feel satisfied with my chances for salary increases.	1 2 3 4 5 6
29	There are benefits we do not have which we should have.	1 2 3 4 5 6
30	I like my supervisor.	1 2 3 4 5 6
31	I have too much paperwork.	1 2 3 4 5 6
32	I don't feel my efforts are rewarded the way they should be.	1 2 3 4 5 6
33	I am satisfied with my chances for promotion.	1 2 3 4 5 6
34	There is too much bickering and fighting at work.	1 2 3 4 5 6
35	My job is enjoyable.	1 2 3 4 5 6
36	Work assignments are not fully explained.	1 2 3 4 5 6

Appendix F: Leader-Member Exchange Instrument

Gmail

Rebecca Mansfield <rebeccamansfield1@gmail.com>

LMX

Scandura, Terri <tscandur@bus.miami.edu>
To: Rebecca Mansfield <rebeccamansfield1@gmail.com>

Mon, Feb 6, 2017 at 11:48 AM

Dear Rebecca,

The LMX measure is available for research purposes, including dissertations.

Best of luck!

Terri A. Scandura

Professor of Management

School of Business Administration

University of Miami

www.sagepub.com/scandura

Leader-Member Exchange (LMX7)

The following questions ask about **your relationship with your immediate boss**, i.e. **the person you report to**. Circle your answer.

1. Do you know where you stand with him/her... do you usually know how satisfied he/she is with what you do?

1	2	3	4	5
Rarely	Occasionally	Sometimes	Fairly often	Very often

2. How well does he/she understand your job problems and needs?

1	2	3	4	5
Not a bit	A little	A fair amount	Quite a bit	A great deal

3. How well does he/she recognize your potential?

1	2	3	4	5
Not at all	A little	Moderately	Mostly	Fully

4. Regardless of how much formal authority he/she has built into his/ her position, what are the chances that he/she would use his/ her power to help you solve problems in your work?

1	2	3	4	5
None	Small	Moderate	High	Very high

5. Again, regardless of the amount of formal authority he/she has, what are the chances that he/she would "bail you out," at his/ her expense?

1	2	3	4	5
None	Small	Moderate	High	Very high

6. I have enough confidence in him/her that I would defend and justify his/ her decision if he/she were not present to do so?

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

7. How would you characterize your working relationship with him/her?

1	2	3	4	5
Extremely ineffective	Worse than average	Average	Better than average	Extremely effective

Appendix G: Multifactor Leadership Questionnaire—5X SHORT

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Multifactor Leadership Questionnaire™

Instrument (Leader and Rater Form)

and Scoring Guide
(Form 5X-Short)

by Bruce Avolio and Bernard Bass

Published by Mind Garden, Inc.

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MLQ Multifactor Leadership Questionnaire
Scoring Key (5x) Short

My Name: _____ Date: _____

Organization ID #: _____ Leader ID #: _____

Scoring: The MLQ scale scores are average scores for the items on the scale. The score can be derived by summing the items and dividing by the number of items that make up the scale. All of the leadership style scales have four items, Extra Effort has three items, Effectiveness has four items, and Satisfaction has two items.

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
0	1	2	3	4

Idealized Influence (Attributed) total/4 =
Idealized Influence (Behavior) total/4 =
Inspirational Motivation total/4 =
Intellectual Stimulation total/4 =
Individualized Consideration total/4 =
Contingent Reward total/4 =
Management-by-Exception (Active) total/4 =
Management-by-Exception (Passive) total/4 =
Laissez-faire Leadership total/4 =
Extra Effort total/3 =
Effectiveness total/4 =
Satisfaction total/2 =

1. **Contingent Reward** 0 1 2 3 4
2. **Intellectual Stimulation** 0 1 2 3 4
3. **Management-by-Exception (Passive)** 0 1 2 3 4
4. **Management-by-Exception (Active)** 0 1 2 3 4
5. **Laissez-faire** 0 1 2 3 4

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Characteristic	Scale Name	Scale Abbrev	Items
Transformational	Idealized Attributes or Idealized Influence (Attributes)	IA or II(A)	10,18,21,25
Transformational	Idealized Behaviors or Idealized Influence (Behaviors)	IB or II(B)	6,14,23,34
Transformational	Inspirational Motivation	IM	9,13,26,36
Transformational	Intellectual Stimulation	IS	2,8,30,32
Transformational	Individual Consideration	IC	15,19,29,31
Transactional	Contingent Reward	CR	1,11,16,35
Transactional	Mgmt by Exception (Active)	MBEA	4,22,24,27
Passive Avoidant	Mgmt by Exception (Passive)	MBEP	3,12,17,20
Passive Avoidant	Laissez-Faire	LF	5,7,28,33

Characteristic	Scale Name	Scale Abbrev	Items
*Outcomes of Leadership	Extra Effort	EE	39,42,44
Outcomes of Leadership	Effectiveness	EFF	37,40,43,45
Outcomes of Leadership	Satisfaction	SAT	38,41

*As the term connotes, the Outcomes of Leadership are not Leadership styles, rather they are outcomes or results of leadership behavior.

Appendix H: 2017 Top Telecommuting Jobs

Rank	Company Name
1	Appen
2	LiveOps
3	Amazon
4	TeleTech
5	VIPKID
6	LanguageLine Solutions
7	Working Solutions
8	Kelly Services
9	Sutherland Global Services
10	UnitedHealth Group
11	Hilton Worldwide
12	Cactus Communications
13	Convergys
14	Xerox
15	Kaplan
16	Dell
17	Intuit
18	U.S. Department of Agriculture
19	K12
20	Humana
21	ADP
22	IBM
23	BroadPath Healthcare Solutions
24	CyberCoders
25	Allergan
26	Salesforce
27	Anthem, Inc.
28	SAP
29	IT Pros
30	Robert Half International
31	Wells Fargo
32	Houghton Mifflin Harcourt
33	PAREXEL

34	CACI International
35	CSI Companies
36	CSRA
37	Connections Education
38	Worldpay
39	Nielsen
40	Thermo Fisher Scientific
41	Vivint Smart Homes
42	VMware
43	A Place for Mom
44	Appirio
45	U.S. General Services Administration - GSA
46	Direct Interactions
47	World Travel Holdings
48	nThrive
49	Aon
50	Westat
51	Adobe
52	U.S. Department of State
53	Sodexo
54	Covance
55	McKesson Corporation
56	Edmentum
57	U.S. Department of the Interior
58	Haynes & Company
59	Teradata
60	SecureWorks
61	Eaton
62	Real Staffing
63	US-Reports
64	PPD - Pharmaceutical Product Development
65	American Express
66	GreatAuPair
67	The Hartford
68	Grand Canyon University
69	Motorola Solutions

70	Western Governors University
71	Walden University
72	Crawford & Company
73	Overland Solutions, an EXL company
74	Cigna
75	SYKES
76	About.com
77	AmerisourceBergen
78	Citizens Bank
79	U.S. Department of Commerce
80	Infor
81	Achieve Test Prep
82	hibu
83	CyraCom
84	Kronos
85	CVS Health
86	Blue Cross Blue Shield
87	AbbVie
88	HD Supply
89	TEKsystems
90	Perficient
91	HCA - Hospital Corporation of America
92	Lenovo
93	BCD Travel
94	Cornerstone OnDemand
95	DataStax
96	FlexProfessionals
97	JPMorgan Chase
98	Kforce
99	Teleflex
100	American Heart Association